

Attleboro, MA

# Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive

*January 12, 2022*

Bidding Requirements, Bond Forms, Contract Agreement,  
Conditions of the Contract and Technical Specifications

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*Kien Y. Ho*  
1.12.22



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## TABLE OF CONTENTS

<u>Section Number</u>	<u>Title</u>	<u>Page No.</u>
<b>BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT</b>		
<b>Division 0 Documents</b>		
00100	Notice to Bidders	00100-1 to 00100-2
00200	Information for Bidders	00200-1 to 00200-12
00300	Bid Form	00300-1 to 00300-19
00400	Bid Bond	00400-1 to 00400-2
00500	Contract Agreement	00500-1 to 00500-23
00600	Contract Bond	00600-1 to 00600-8
00700	General Conditions	00700-1 to 00700-8
00800	Supplementary Condition	00800-1 to 00800-5
<b>SPECIFICATIONS</b>		
<b>Division 1 General Requirements</b>		
01010	Summary of Work	01010-1 to 01010-2
01025	Measurement and Payment	01025-1
01035	Modification Procedure	01035-1 to 01035-2
01050	Field Engineering	01050-1
01065	Material Price Adjustments	01065-1 to 01065-4
01067	State of Massachusetts and Local Requirements	01067-1 to 01067-9
01170	Environmental Protection	01170-1 to 01170-3
01200	Project Meetings	01200-1
01300	Submittals	01300-1 to 01300-3
01400	Quality Control	01400-1
01410	Testing Laboratory	01410-1 to 01410-3
01510	Temporary Utilities	01510-1
01560	Temporary Controls	01560-1 to 01560-3
01570	Traffic Regulations (Massachusetts)	01570-1 to 01570-2
01600	Materials and Equipment	01600-1 to 01600-2
01800	Maintenance	01800-1 to 01800-2
<b>Division 2 Roadway Work</b>		
02500	Special Provisions	02500-1 to 02500-8
02500	Construction Specifications	02500-9 to 02500-70
<b>APPENDIX</b>		
A. Prevailing Wage Rates		

## SECTION 00100

### NOTICE TO BIDDERS

#### City of Attleboro, Massachusetts

#### Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive

The City of Attleboro, Massachusetts, acting through its Department of Public Works invites sealed bids for "City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive", in accordance with the Contract Documents prepared by BETA GROUP, INC., Consulting Engineers, 315 Norwood Park South, Norwood, Massachusetts, 02062.

Bids will be received at the Purchasing Department, City Hall, 77 Park Street, 2<sup>nd</sup> Floor, Attleboro, MA, 02703, Attention: Ms. Carol Brown until **12:00 PM** local time on **January 27, 2022**, at which time and place, said Bids will be publicly opened and read aloud.

The location, general characteristics, and principal details of the Work are indicated herein and in the attached drawings.

The work includes mill and overlay, small areas of full depth box widening less than 4 feet wide, cement concrete sidewalks and pedestrian curb ramps, hot mix asphalt driveways, loam and seed, plantings, minor drainage improvements, a new traffic signal, a reconstructed traffic signal, a new flashing warning beacon, a Rectangular Rapid Flashing Beacon (RRFB), removal of an existing traffic signal, removal of an existing flashing warning beacon, pavement markings, signs, safety controls and signing for construction operations and other incidental items included in the contract documents.

To bid on this project, Contractors must be prequalified in accordance with 720 CMR 5.00, *Prequalification of Contractors by MassDOT*. "Informational Only" copies of the Contract Documents will be available to any individual or firm.

**Bid Security:** A five (5%) percent bid bond is required with bid submission, payable to the City of Attleboro.

Time for Completion for this project shall be **110** consecutive working days from the date stipulated in the Notice to Proceed to commence the Work. Project must be substantially completed and traffic signal at Route 123/Rathbun-Willard Drive/Black Oak Drive intersection must be fully operational by August 26, 2022.

Contract Documents may be obtained from Accent Printing. Electronic copies can be downloaded from their web site [www.accentblueprints.com](http://www.accentblueprints.com) for no charge. Hard copies can be obtained for a fee. Contact Accent Printing for more information at 978.362.8038.

Contract Documents may be examined, but not obtained, at the Purchasing Department, City Hall, 77 Park Street, 2<sup>nd</sup> Floor, Attleboro, MA, 02703.

Direct all inquiries to Kien Ho, BETA Group, Inc. at 781-255-1982 or kho@BETA-Inc.com.

All Bids for this project are subject to applicable bidding laws of Massachusetts, including General Laws Chapter 30, Section 39M as amended.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under this Contract as determined by the Department of Labor and Industries under provisions of the Massachusetts General Laws Chapter 149, Section 26-27, inclusive, as amended.

MBE/WBE participation is not required for this project.

No Bidder may withdraw his bid within Ninety (90) days after the actual date of the opening thereof.

The successful Bidder must furnish 100 percent Performance and Labor and Materials Bonds.

The Owner and Engineer, being considered the sole and only judge, reserves the right to waive any informality in, or to reject, any or all bids, should the Owner deem it to be in the owner's best interest to do so.

City of Attleboro, Massachusetts,

DPW Superintendent  
Mr. Michael Tyler

**END OF SECTION**

## **SECTION 00200**

### **INFORMATION FOR BIDDERS**

- 1.01 Receipt and Opening of Bids
- 1.02 Location and Work to be Done
- 1.03 Contract Documents
- 1.04 Payments for Drawings and Documents
- 1.05 Questions Regarding Drawings and Documents
- 1.06 Pre-Bid Conference
- 1.07 Bidders to Investigate
- 1.08 Information Not Guaranteed
- 1.09 Conditions of Work
- 1.10 Blank Form for Bid
- 1.11 Withdrawal of Bids
- 1.12 Bid Security
- 1.13 Interested Parties to Contract
- 1.14 Ability and Experience of Bidder
- 1.15 Bids
- 1.16 Comparison of Bids
- 1.17 Items and Indeterminate Items
- 1.18 Reduction in Scope of Work
- 1.19 Contract Bonds
- 1.20 Power of Attorney
- 1.21 Execution of Agreement
- 1.22 Insurance Certificates
- 1.23 Time for Completion and Liquidated Damages
- 1.24 Laws and Regulations
- 1.25 Work on State, Municipal, and Private Property
- 1.26 Datum or Levels
- 1.27 State Sales and Use Tax
- 1.28 Manufacturer's Experience
- 1.29 Protection of Lives and Health
- 1.30 Nondiscrimination in Employment
- 1.31 Sequence of Operations
- 1.32 Wetlands and Waterways
- 1.33 Borings - Subsurface Data
- 1.34 Materials Price Adjustment
- 1.35 Massachusetts Wage Rates

#### **1.01 RECEIPT AND OPENING OF BIDS**

- A. The City of Attleboro, Massachusetts, herein called the Owner, acting through its Department of Public Works invites sealed bids for "City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive", in accordance with the Contract Documents prepared by BETA Group, Inc., Consulting Engineers, 315 Norwood Park South, Norwood, Massachusetts, 02062.

- B. Such Bids, submitted in sealed envelopes plainly marked in the upper left hand corner with the Bidder's name and address, plainly marked in the lower left hand corner with the date and time of opening, addressed to:

Purchasing Department, City Hall, 2nd Floor, 77 Park St, Attleboro, MA 02703

Attention: Ms. Carol Brown

Endorsed: Intersection Improvements – Route 123 at Rathbun-Willard Drive &  
Black Oak Drive Contract

Delivered by: 12:00 PM local time on January 27, 2022,

at which time and place, said Bids will be publicly opened and read aloud.

- C. The Owner may consider informal, any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all Bids. Conditional or qualified Bids will not be accepted. Any Bid received after the time and date specified shall not be considered. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the Owner and the Bidder.

#### 1.02 LOCATION AND WORK TO BE DONE

- A. The location, general characteristics, and principal details of the Work are indicated herein and in a set of drawings, entitled "City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive".
- B. Additional drawings showing details in accordance with which the Work is to be done will be furnished from time to time by the Engineer, if found necessary, and shall then become part of the Drawings.
- C. The Contractor shall furnish all labor, services, materials, equipment, plant machinery, apparatus, appliances, tools, supplies and all other things necessary to perform all work required for the completion of each item of the Work and as herein specified.
- D. The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described, but shall include all incidental work necessary or customarily done for the completion of that item.

#### 1.03 CONTRACT DOCUMENTS

- A. The Contract Documents, INFORMATION FOR BIDDERS, SPECIFICATIONS, and forms for BID, AGREEMENT, BONDS and PLANS, may be obtained from Accent Printing. Electronic copies can be downloaded from their web site [www.accentblueprints.com](http://www.accentblueprints.com) for no charge. Hard copies can be obtained for a fee. Contact Accent Printing for more information at 978.362.8038.
- B. The Contract Documents, INFORMATION FOR BIDDERS, SPECIFICATIONS, and forms for BID, AGREEMENT, and BONDS, may be examined but not obtained at the Purchasing Department, City Hall, 77 Park Street, 2nd Floor, Attleboro, MA.

#### 1.04 PAYMENT FOR DRAWINGS AND DOCUMENTS

- A. Electronic copies can be downloaded at no cost. Hard copies can be obtained for a fee. Contact Accent Printing for more information at 978.362.8038 or [www.accentblueprints.com](http://www.accentblueprints.com).

#### 1.05 QUESTIONS REGARDING DRAWINGS AND DOCUMENTS

- A. In general, no answer will be given to prospective bidders in reply to an oral question of the intent or meaning of the Drawings or other Contract Documents, or the equality or use of products or methods other than those designated or described on the Drawings or in the Specifications. Any information given to bidders other than by means of the Drawings and other Contract Documents, including Addenda, as described below, is given informally, for information and the convenience of the bidder only and is not guaranteed. The bidder agrees that such information shall not be used as the basis of nor shall the giving of any such information entitle the bidder to assert any claim or demand against the Owner or the Engineer on account thereof.
- B. To receive consideration, such questions shall be submitted in writing or faxed to the Engineer (for this purpose, BETA Group, Inc., 315 Norwood Park South, Norwood, Massachusetts, 02062, Telephone No. (781) 255-1982, Fax No. (781) 255-1974 at least seven calendar days before the established date for receipt of Bids. If the question involves the equality or use of products or methods, it must be accompanied by drawings, specifications or other data in sufficient detail to enable the Engineer to determine the equality or suitability of the product or method. In general, the Engineer will neither approve nor disapprove particular products prior to the opening of Bids; such products will be considered when offered by the Contractor for incorporation into the Work.
- C. The Engineer will set forth as Addenda, which shall become a part of the Contract Documents, such questions received as above provided as in his sole judgment are appropriate or necessary and his decision regarding each. At least two (2) days prior to the receipt of Bids, he will send a copy of these Addenda to those prospective bidders known to have taken out sets of the Drawings and other Contract Documents.
- D. The Contractor agrees to use the products and methods designated or described in the Specifications as amended by the Addenda.

#### 1.06 PRE-BID CONFERENCE (N/A)

#### 1.07 BIDDERS TO INVESTIGATE

- A. Bidders are required to submit their Bids upon the following express conditions, which shall apply to and be deemed a part of every Bid received, viz.:
- B. Bidders must satisfy themselves by personal examination of the Work and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the Work and difficulties attendant upon its execution, and the accuracy of all estimated quantities stated in the Bid.

#### 1.08 INFORMATION NOT GUARANTEED

- A. All information given on the Drawings or in the other Contract Drawings relating to subsurface and other conditions, natural phenomena, existing pipes and other structures is from the best



sources at present available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

- B. It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes or other structures encountered during construction will be the same as those indicated on the Drawings or in the other Contract Documents.
- C. It is agreed further and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

#### 1.09 CONDITIONS OF WORK

- A. Each bidder must inform himself fully of the conditions relating to the construction and labor under which the work is now or will be performed; failure to do so will not relieve the successful bidder of his obligation to furnish all materials and all labor necessary to carry out the provisions of the Contract Documents and to complete the contemplated Work for the consideration set forth in his bid. Insofar as possible, the Contractor, in the carrying out of his work, shall employ such methods or means as will not cause any interruption of or interference with: the operation of the existing sewer; traffic; use of existing facilities and utilities; locations of existing utilities and structures affecting the work or other similar conditions at the site; character of equipment and facilities needed preliminary to and during prosecution of the work; requirements of owners and controlling authorities, having jurisdiction over the various lands, existing structures, facilities, and utilities; and all other conditions affecting the work to be done, and the labor and materials needed; and he shall make his bid in sole reliance thereon; and shall not, at any time after submission of a bid, assert that there was any misunderstanding in regard to the nature or amount of the work to be done.

#### 1.10 BLANK FORM FOR BID

- A. Each bid must be submitted on the prescribed form, accompanied by the Bid Security and any other requested information. All blank spaces for bid prices must be filled in, in ink or typewritten, both in words and numerical figures, and be signed by the bidder with his business address and place of residence. Where both written words and numerical figures are given, the written words shall apply in the event of conflict. All bids shall be prepared in conformity with, and based upon and submitted subject to, all requirements of the Specifications and Drawings, together with all addenda thereto.

#### 1.11 WITHDRAWAL OF BIDS

- A. Except as hereinafter in this subsection otherwise expressly provided, once his Bid is submitted and received by the Owner for consideration and comparison with other bids similarly submitted, the bidder agrees that he may not and will not withdraw it within Ninety (90) consecutive calendar days after the actual date of the opening of Bids.

- B. Upon proper written request and identification, Bids may be withdrawn only as follows:
  - 1. At any time prior to the designated time for the opening of Bids.
  - 2. Provided the Bid has not theretofore been accepted by the Owner, at any time subsequent to the expiration of the period during which the bidder has agreed not to withdraw his Bid.
- C. Unless a Bid is withdrawn as provided above, the bidder agrees that it shall be deemed open for acceptance until the AGREEMENT has been executed by both parties thereto or until the Owner notifies a bidder in writing that his Bid is rejected or that the Owner does not intend to accept it, or returns his Bid deposit. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

#### 1.12 BID SECURITY

- A. Each bid must be accompanied by a certified check, treasurer's check or cashier's check issued by, a responsible bank or trust company and payable to the order of the Owner, or by a bid bond prepared on the form of BID BOND attached hereto duly executed and acknowledged by the bidder, as Principal, and by a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Owner, as Surety. The check or bid bond shall be in the sum of five (5) percent of the total bid and shall be enclosed in the sealed envelope containing the Bid.
- B. Each such check or bid bond may be held by the Owner as security for the fulfillment of the bidder's agreements as hereinabove set forth and as set forth in the BID. Should the bidder fail to fulfill such agreements, his bid check shall become the property of the Owner or if a bid bond was furnished, the bid bond shall become payable to the Owner, as liquidated damages; otherwise, the bid check shall be returned to the bidder as hereinafter provided, or if the security is a bid bond, the bid bond shall become null and void.
- C. Bid checks will be returned to all except the three lowest bidders within five days, Sundays and legal holidays excluded, after the opening of Bids, and to the three lowest bidders within five days, Sunday and legal holidays excluded, after the Owner and the accepted bidder have executed the AGREEMENT. In the event that the AGREEMENT has not been executed by both the accepted bidder and the Owner within 90 consecutive calendar days after the opening of Bids, the bid check will be returned promptly upon demand of any bidder who has not been notified of the acceptance of his Bid.
- D. Bid checks accompanying Bids, which are rejected, will be returned within five days, Sundays and legal holidays excluded, after rejection.
- E. None of the three lowest Bids shall be deemed rejected, notwithstanding acceptance of any Bid, until the AGREEMENT has been executed by both the Owner and the accepted bidder.

#### 1.13 INTERESTED PARTIES TO CONTRACT

- A. The undersigned declares; that the only person interested this Bid as principals are named herein as such; that no official of the Owner and no person acting for or employed by the Owner is interested directly or indirectly in this Bid, or in any contract which may be made under it, or in any expected profits to arise therefrom; that this Bid is made in good faith, without fraud, collusion or connection with any other person bidding or refraining from bidding for the same work; that he has examined carefully the said instructions and all other documents bound

herewith and the Contract Drawings relating to the Contract covered by this Bid and hereby makes them part of this Bid; that he has informed himself fully in regard to all conditions pertaining to the work and place where it is to be done; and that he has made his own examination and carefully checked his estimates for cost and from them makes this Bid.

#### 1.14 ABILITY AND EXPERIENCE OF BIDDER

- A. No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the Work successfully within the time named. The Engineer and the Owner may make such investigation as they deem necessary to determine the ability of the bidder to perform the work; and the bidder shall furnish to the Engineer and the Owner all such information and data for this purpose as the Engineer and the Owner may request.
- B. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein within the time stated. The Owner's decision or judgment on these matters shall be final, conclusive, and binding for all parties involved.

#### 1.15 BIDS

- A. The Owner reserves the right to waive any informalities in, or to reject any or all Bids which in its sole judgment are either incomplete, conditional, obscure, or not responsive or which contain additions not called for, erasures not properly initialed, alternative, or similar irregularities, or the Owner may waive such omissions, conditions, or irregularities as he may feel appropriate.
- B. Conditional bids will not be accepted. Bidder(s) will be disqualified if more than one proposal is received from an individual, firm, partnership, corporation or association, under the same or different names and such proposals will not be considered.
- C. The Owner reserves the right to reject any or all Bids, should the Owner deem it to be in the public interest to do so.

#### 1.16 COMPARISON OF BID

- A. Bids will be compared on the basis of the experience and competence of the bidders and on the basis of the totals of the quantities listed in the proposal under the enumerated items at the unit prices or lump sums bid for these items. The Contract will be awarded to the lowest responsive, responsible and eligible bidder as determined by the Owner and/or its authorized representatives or agents. However, the Owner may reject any and all bids if it is in the public interest to do so.
- B. The term, "Lowest responsive, responsible and eligible bidder," shall mean the bidder whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the Work; who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work.
- C. Bids should be made on each separate item of work shown in the bid (proposal) with reasonable relation to the probable cost of doing the work included in such items. The Owner reserves the right to reject, wholly, any bid on which an item or items thereof are obviously unbalanced or

appear to the Owner to be so unbalanced as to affect or to be liable to affect adversely any interests of the Owner. The attention of the bidder is called to the fact that unbalancing of bids may adversely affect the Contractor if certain portions for the Work are increased or decreased as provided in the Contract Documents.

- D. A bidder shall state the proposed price for the work by which the bids will be compared. This price is to cover all the expenses incidental to the completion of the work in full conformity with the Contract, Specifications, and Drawings. In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the lump-sum or unit prices written in words and numerical figures, the prices written in words shall govern. No bid will be accepted which does not contain a unit price or lump sum as indicated for each of the applicable items enumerated in the proposal form.

#### 1.17 ITEMS AND INDETERMINATE ITEMS

- A. The Work to be done under this Contract has been divided into parts or items to enable each bidder to bid on different portions of the work in accordance with his estimate of their cost and so that the actual quantity of work executed under each item may be paid for at the price bid for that particular item, even though such quantity is greater or less than the estimated quantity stated in the BID.
- B. The quantities listed in the bid (proposal) are approximate. The Owner does not expressly or by implication represent that the actual amounts of work will even approximately correspond therewith, but does call particular attention to the uncertainty in the quantities of the work involved which cannot be predicted in advance. The work under certain items may be materially greater or less than those given in the Bid as may be necessary in the judgment of the Owner complete the work contemplated in the Contract. Attention is particularly called to the fact that the quantity of work to be done under some bid items may be largely dependent on subsurface ground conditions encountered and, therefore, the quantities of work to be done under the various items may vary substantially from the estimated quantities or may even be omitted.
- C. Certain items in the BID cover classes of work of doubtful necessity or work for which it is impractical to estimate approximate quantities. Such items have been marked "Indeterminate". Prices for certain of such items have been stipulated in advance by the Owner as stated in the BID.
- D. Only such quantities of the respective items of work actually performed and accepted will be paid for. An increase or decrease in quantity for any item shall not be regarded as grounds for an increase or decrease in the bid prices.

#### 1.18 REDUCTION IN SCOPE OF WORK

- A. The Owner reserves the right to decrease the scope of the work to be done under this Contract and to omit any work in order to bring the cost within available funds. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any as set forth in the BID, either prior to executing the Contract or at any time during the progress of the Work. The Owner further reserves the right, at any time during the progress of the Work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any ground or basis of claim for damages or for anticipated profits on the work omitted.

#### 1.19 CONTRACT BONDS

- A. The Bidder whose Bid is accepted agrees to furnish the Contract Bonds in the forms which follow in Section 00600, titled CONTRACT BONDS, each in the sum of the full amount of the Bid and/or Contract Price as determined by the Engineer, and duly executed and acknowledged by the said bidder as Principal and by a surety company qualified to do business under the laws of Massachusetts and satisfactory to the Owner, as Surety, for the faithful performance of the contract and payment for labor and materials. The premiums for such Bonds shall be paid by the Contractor.
- B. Surety Companies executing the Contract Bonds must also appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (Amended) by the Audit Staff Bureau of Accounts.

#### 1.20 POWER OF ATTORNEY

- A. Attorneys-in-fact who sign Bid Bonds or Contract Bonds must file with each Bond a certified and effectively dated copy of their power of attorney.

#### 1.21 EXECUTION OF AGREEMENT

- A. The Bidder whose Bid is accepted will be required and agrees to duly execute the AGREEMENT and furnish the required CONTRACT BONDS within the time limit stated in the BID after notification that the AGREEMENT is ready for signature.
- B. The Bidder whose Bid is accepted upon his failure or refusal to duly execute the AGREEMENT and furnish the required CONTRACT BONDS within the time limit stated in the BID, shall forfeit to the Owner as liquidated damages for such failure or refusal, the surety deposited with his BID.

#### 1.22 INSURANCE CERTIFICATES

- A. The Contractor will not be permitted to start any construction work until he has submitted certificates covering all insurances called for under that subsection of the AGREEMENT, titled "Insurance." The Contractor shall submit said certificates using the forms supplied by the Engineer under said subsection.

#### 1.23 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- A. The bidder must agree to commence work on or before the date specified in the written "NOTICE TO PROCEED" issued by the Owner, and/or Engineer acting on behalf of the Owner, and to fully complete the project within the time specified in **Table A** of the Agreement, after the date specified in the written "NOTICE TO PROCEED" as stipulated in **Table A** of the AGREEMENT. The bidder must further agree to pay as liquidated damages to the Owner, the sum as specified in **Table A** of the Agreement for each consecutive calendar day thereafter as hereafter provided in the AGREEMENT.

#### 1.24 LAWS AND REGULATIONS

- A. The bidder's attention is directed to the fact that all applicable Federal and State laws, municipal ordinances, and rules and regulations or authorities having jurisdiction over construction of the project, shall apply to the Contract throughout, and shall be deemed to be included in the Contract the same as though herein written out in full.

#### 1.25 WORK ON STATE, MUNICIPAL, AND PRIVATE PROPERTY

- A. Particular attention is hereby directed to the fact that portions of the Work included under this Contract will be done within the limits of properties that are State-owned, municipal-owned, or privately owned. The Contractor shall be responsible for coordinating the prosecution of the Work of this Contract with the property owner and for providing work in accordance with any additional requirements as specified herein.

#### 1.26 DATUM OR LEVELS

- A. The figures given in the Contract and Specifications or upon the Drawings after the word elevation shall mean the distance in feet above mean sea level, the base of the Commonwealth of Massachusetts and the United States Geological Survey (U.S.G.S.).

#### 1.27 STATE SALES AND USE TAX

- A. Materials and equipment purchased for installation under this Contract are exempt from Massachusetts Sales Tax. The Contractor shall file for exemption on behalf of the Owner with the Commonwealth of Massachusetts Department of Taxation as required by law. The exemption from the Sales Tax shall be taken into account by the Contractor during bidding.

#### 1.28 MANUFACTURER'S EXPERIENCE

- A. Wherever it may be written that an equipment manufacturer must have a specified period of experience with his product, equipment which does not meet the specified experience period may be considered by the Owner and/or Engineer if the equipment supplier or manufacturer is willing to provide a sufficient bond or cash deposit as determined by the Owner and/or Engineer for the duration of the specified time period which will guarantee full replacement of that equipment in the event of failure at no additional cost to the Owner.

#### 1.29 PROTECTION OF LIVES AND HEALTH

- A. The project is subject to all of the Safety and Health Regulations as promulgated by the United States Department of Labor (Title 29, Part 1926/1910 CFR, and all revisions and amendments to date); the Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.) as supplemented by the Department of Labor Regulations (Title 29 CFR Part 5); and OSHA 2207, and all revisions and amendments to date. Contractors are urged to make themselves familiar with the requirements of these regulations.

### 1.30 NONDISCRIMINATION IN EMPLOYMENT

- A. Contracts for work under this bid (proposal) will obligate the Contractors and subcontractors not to discriminate in employment practices.
- B. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age, handicap, or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and the employees are treated during employment without regard to their race, color, religion, sex, age, handicap, or national origin. Such actions shall include, but not be limited to, the following: employment, upgrading; demotions, or transfers; recruitment or recruitment advertising, layoffs, or terminations; rates of pay or other forms of compensation; selection for training including apprenticeship; and participation in recreational and education activities. The Contractor agrees to post in conspicuous places available to employees and applicants for employment notice to be provided setting forth the provisions of this non-discrimination clause. The Contractor will in all solicitations or advertisements for employees placed by or on behalf on the Contractor state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age, handicap or national origin. The Contractor will cause the foregoing provisions to be inserted in all sub-contracts for any work covered by this Contract so that such provisions will be binding upon each sub-contractor and upon sub-contracts for standard commercial supplies or raw materials.
- C. The Contractor shall keep such records and submit such reports concerning the racial and ethnic origin of applicants for employment and employees as the Owner may require as consistent with Federal and State law. The Contractor agrees to comply with such rules, regulations, or guidelines as the Commonwealth of Massachusetts may implement these requirements. The Contractor further warrants that he will comply with the President's Executive Order No. 11246 or any preceding similar Executive Order relating thereto.
- D. Bidders and Contractors must, if required, submit a compliance report (EPA Form 5720-4) concerning their employment practices and policies in order to maintain their eligibility to receive award of the Contract.
- E. Successful bidders and Contractors must, if required, submit a list of all Subcontractors who will perform work on the project, and written signed statements from authorized agents of labor pools with which they will or may deal with for employees on the work, together with any information to the effect that such labor pools' practices or policies are in conformity with said Executive Order that they will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under this Contract; or a certification as to when such agents or labor pools have failed or refused to furnish them, prior to award of the Contract.
- F. The successful bidder will be required to comply with Equal Opportunity Requirements and to abide by the prevailing wage rates for Public Work Projects for all employees on the job. It is the responsibility of Bidders to inform themselves as to the local labor conditions, overtime compensation, health and welfare contributions, labor supply and prospective changes or adjustment of wage rates. Information is available at the Office of Labor and Workforce Development.
- G. The minimum combined MBE/WBE participation goal of 0% is applicable to this project.

### 1.31 SEQUENCE OF OPERATIONS

- A. The Contractor must submit to the Engineer within fourteen (14) calendar days after execution of the Contractor Documents, a sequence of operations, giving detailed plans and schedules of his operation including any elements for by-pass pumping and/or flow diversion during the Work. Said sequence of operations shall be reviewed and must be approved by the Owner and Engineer prior to the start of the Work. The Owner reserves the right to limit or, if found necessary and/or required, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest to do so.
- B. The Contractor shall have no claim for additional compensation or damage on account of any such delays and/or required sequence of operations.
- C. The Contractor shall maintain uninterrupted utility services at all times, and plan his work accordingly.
- D. The Contractor shall coordinate his activities with any other contract and/or contractor to complete the Work as detailed on the Plans and Specifications.

### 1.32 WETLANDS AND WATERWAYS

- A. The Contractor's attention is directed to the fact that a portion of the work is located within and/or immediately adjacent to wetlands and waterways. Work within these areas is subject to the jurisdiction of the Massachusetts Department of Environmental Protection. All requirements and/or control measures deemed necessary by the Department shall be strictly adhered to throughout the duration of this Contract.
- B. The Contractor shall not have or assert any claim for nor shall he be entitled to any additional compensation or damages on account of requirements set forth by the Department of Environmental Protection regarding the wetlands and waterways encountered during construction.

### 1.33 BORINGS - SUBSURFACE DATA

- A. No subsurface data was collected.

### 1.34 MATERIAL PRICE ADJUSTMENT

- A. This contract is subject to the requirements of Massachusetts General Law c30 s38A, Price adjustment clause in contracts for road, bridge, water and sewer projects awarded under Sec. 39M. See Section 01065 Material Price Adjustments.

### 1.35 MASSACHUSETTS WAGE RATES

- A. Minimum Wage Rates as determined by the Commissioner of Department of Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on



Minimum Wage Rates for those trades people who may be employed for the proposed work under this contract. See the APPENDIX for Prevailing Wage Rates.

**END OF SECTION**

## **SECTION 00300**

### **BID FORM**

To the City of Attleboro, Massachusetts, herein called the "Owner", for  
"City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive &  
Black Oak Drive Contract".

The Undersigned, as a bidder herein referred to as singular and masculine, declares as follows:

- (1) The only parties interested in this BID as Principals are named herein;
- (2) this BID is made without collusion with any other person, firm, or corporation;
- (3) no officer, agent, or employee of the Owner is directly or indirectly interested in this BID;
- (4) he has carefully examined the site of the proposed Work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this BID, and he has carefully read and examined the Drawings, the annexed proposed AGREEMENT and the Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
- (5) he understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty or guarantee, expressed or implied, that the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered will be the same as those shown on the Drawings or in any of the other Contract Documents and he agrees that he shall not use or be entitled to use any such information made available to him through the Contract Documents or otherwise or obtained by him in his own examination of the site, as a basis of or ground for any claim against the Owner or the Engineer arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by him and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and he has made due allowance therefore in this BID;
- (6) and he understands that the quantities of work tabulated in this BID or indicated on the Drawings or in the Specifications or other Contract Documents are only approximate and are subject to increase or decrease as deemed necessary by the Engineer; and he agrees that, if this BID is accepted he will contract with the Owner, as provided in the copy of the Contract Documents deposited in the office of the Engineer, this BID form being part of said Contract Documents, and that he will perform all the work and furnish all the materials and equipment, and provide all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other things required by the Contract Documents in the manner and within the time therein prescribed and according to the requirements of the Engineer as therein set forth, and that he will take in full compensation therefore the total dollar amount tabulated from the actual measured quantities of said work and each unit or lump sum price stated in this BID as hereinafter set forth.

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### **BID ITEMS**

ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
101.15	1	SITE PREPARATION AT		
		PER LUMP SUM		
120.1	100	UNCLASSIFIED EXCAVATION AT		
		PER CUBIC YARD		
151.	1,255	GRAVEL BORROW AT		
		PER CUBIC YARD		
220.	15	DRAINAGE STRUCTURE ADJUSTED AT		
		PER EACH		
220.2	5	DRAINAGE STRUCTURE REBUILT AT		
		PER FOOT		
220.5	4	DRAINAGE STRUCTURE REMODELED AT		
		PER EACH		
222.3	6	FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD AT		
		PER EACH		
227.3	25	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT		
		PER CUBIC YARD		
357.06	2	6 INCH GATE BOX AT		
		PER EACH		
358.	10	GATE BOX ADJUSTED AT		
		PER EACH		
376.5	1	HYDRANT – ADJUSTED AT		
		PER EACH		

ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
381.	3	SERVICE BOX AT		
		PER EACH		
381.3	26	SERVICE BOX ADJUSTED AT		
		PER EACH		
384.	2	CURB STOP AT		
		PER EACH		
415.1	13,610	PAVEMENT STANDARD MILLING AT		
		PER SQUARE YARD		
431.	90	HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE AT		
		PER SQUARE YARD		
440.	6,800	CALCIUM CHLORIDE FOR ROADWAY DUST CONTROL AT		
		PER POUND		
443.	5	WATER FOR ROADWAY DUST CONTROL AT		
		PER MEGAGALLON		
451.	50	HMA FOR PATCHING AT		
		PER TON		
460.23	1,365	SUPERPAVE SURFACE COURSE – 12.5 (SSC – 12.5) AT		
		PER TON		
460.31	40	SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC – 12.5) AT		
		PER TON		

ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
460.41	50	SUPERPAVE BASE COURSE – 25.0 (SBC – 25.0) AT		
		PER TON		
472.	50	TEMPORARY ASPHALT PATCHING AT		
		PER TON		
506.01	5,050	GRANITE CURB – TYPE VA4 AT		
		PER FOOT		
697.1	23	SILT SACK AT		
		PER EACH		
701.	3,320	CEMENT CONCRETE SIDEWALK AT		
		PER SQUARE YARD		
701.1	485	CEMENT CONCRETE SIDEWALK AT DRIVEWAYS AT		
		PER SQUARE YARD		
701.2	400	CEMENT CONCRETE PEDESTRIAN CURB RAMPS AT		
		PER SQUARE YARD		
702.	60	HOT MIX ASPHALT SIDEWALK OR DRIVEWAY AT		
		PER TON		
711.	1	BOUND REMOVED AND RESET AT		
		PER EACH		
748.	1	MOBILIZATION AT		
		PER LUMP SUM		

ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
751.	145	LOAM BORROW AT		
		PER CUBIC YARD		
756.	1	NPDES STORMWATER POLLUTION PREVENTION PLAN AT		
		PER LUMP SUM		
765.	1,030	SEEDING AT		
		PER SQUARE YARD		
767.121	710	SEDIMENT CONTROL BARRIER AT		
		PER FOOT		
795.011	30	VIBURNUM – ARROWWOOD – BLUE MUFFIN 2-3 FOOT AT		
		PER EACH		
804.3	1,050	3 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC –(UL) AT		
		PER FOOT		
811.22	2	ELECTRICAL HANDHOLE – SD2.022 AT		
		PER EACH		
811.31	15	PULL BOX 12 X 12 INCHES – SD2.031 AT		
		PER EACH		
815.1	1	TRAFFIC CONTROL SIGNAL AT		
		PER LUMP SUM		
816.02	1	TRAFFIC SIGNAL RECONSTRUCTION AT		
		PER LUMP SUM		

ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
816.82	1	TRAFFIC SIGNAL REMOVED AND DISCARDED AT		
		PER LUMP SUM		
824.221	1	RECTANGULAR RAPID FLASHING BEACON (SOLAR) AT		
		PER LUMP SUM		
824.451	1	FLASHING WARNING BEACON AT		
		PER LUMP SUM		
824.53	1	FLASHING WARNING BEACON REMOVED AND DISCARDED AT		
		PER LUMP SUM		
832.	225	WARNING-REGULATORY AND ROUTE MARKER – ALUMINUM PANEL (TYPE A) AT		
		PER SQUARE FOOT		
847.1	33	SIGN SUP (N/GUIDE)+RTE MKR W/ 1 BRKWAY POST ASSEMBLY - STEEL AT		
		PER EACH		
852.	500	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT		
		PER SQUARE FOOT		
852.11	50	TEMPORARY PEDESTRIAN BARRICADE AT		
		PER FOOT		
852.12	2	TEMPORARY PEDESTRIAN CURB RAMP AT		
		PER EACH		



ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
854.016	6,225	TEMPORARY PAVING MARKINGS – 6 INCH (PAINTED) AT		
		PER FOOT		
854.036	1,250	TEMPORARY PAVING MARKINGS – 6 INCH (TAPE) AT		
		PER FOOT		
856.12	120	PORTABLE CHANGEABLE MESSAGE SIGN AT		
		PER DAY		
859.	2,500	REFLECTORIZED DRUM AT		
		PER DAY		
859.1	160	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AT		
		PER DAY		
864.02	50	PAVEMENT ARROW AND LEGENDS – TAPE AT		
864.04	250	PAVEMENT ARROWS AND LEGENDS REFLECTORIZED WHITE (THERMOPLASTIC) AT		
		PER SQUARE FOOT		
866.104	6,250	4 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) AT		
		PER FOOT		
866.112	4,000	12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC) AT		
		PER FOOT		

ITEM	QUANTITY*	ITEMS AND UNIT PRICES	UNIT PRICES (\$)	AMOUNT (\$)
867.104	6,300	4 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) AT		
		PER FOOT		
867.112	250	12 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC) AT		
		PER FOOT		
874.	10	STREET NAME SIGN AT		
		PER EACH		
874.45	6	MISCELLANEOUS SIGNS REMOVED AND RESET AT		
		PER EACH		
874.51	1	MISCELLANEOUS SIGNS REMOVED AND DISCARDED AT		
		PER LUMP SUM		
999.	250	POLICE DETAIL AT	\$440.00	\$110,000.00
		PER DAY		

(Note: All entries in the entire BID must be made clearly and in ink; price bid must be written in both words and figures.

\* Indeterminate quantity for comparison of bids.

**TOTAL OF BID:**

\_\_\_\_\_ dollars  
and \_\_\_\_\_ cents \$ \_\_\_\_\_

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the annexed form of AGREEMENT, he will accept compensation as stipulated therein as full payment for such extra work.

If the Bid is accepted by the OWNER, the undersigned agrees to commence work under this Contract on a date to be specified in a written "Notice to Proceed" by the Owner and complete the entire work provided to be done under this Contract within the time stipulated in **Table "A"** of the AGREEMENT. If this bid is accepted by the Owner, the undersigned, also agrees to comply with the provisions of Section 1.14 "Liquidated Damages" and Table A of the Agreement.

As provided in the INFORMATION FOR BIDDERS, the bidder hereby agrees that he will not withdraw this BID, within 90 consecutive calendar days after the actual date of the opening of Bids, and that, if the Owner shall accept this BID, the bidder will duly execute and acknowledge the AGREEMENT and furnish, duly executed and acknowledged, the required CONTRACT BONDS within fourteen (14) consecutive calendar days after notification that the AGREEMENT and other Contract Documents are ready for signature.

Should the bidder fail to execute any of his agreements as hereinabove set forth, the Owner shall have the right to retain as liquidated damages, the Bid Security attached in the sum of (5 percent of Total Bid) \_\_\_\_\_ Dollars, (\$ \_\_\_\_\_) which shall become the Owner's property for the delay and additional expense to the Owner caused thereby. If a bid bond was given, it is agreed that the amount thereof shall be paid as liquidated damages to the Owner by the Surety. (Bidder must fill in this blank.)

The bidder hereby acknowledges the receipt of, and has included in this BID, the following Addenda:

(To be filled in by Bidder, if Addendums are issues.)

Addendum No. \_\_\_\_\_, dated \_\_\_\_\_

Addendum No. \_\_\_\_\_, dated \_\_\_\_\_

Addendum No. \_\_\_\_\_, dated \_\_\_\_\_

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The bidder, by submittal of this BID, agrees with the Owner that the amount of the bid security deposited with this BID fairly and reasonably represents the amount of damages the Owner will suffer due to the failure of the bidder to fulfill his agreements as above provided.

(SEAL)

\_\_\_\_\_ L.S.  
(Name of Bidder)

By \_\_\_\_\_  
(Signature and title of authorized representative)

\_\_\_\_\_  
(Business address)

\_\_\_\_\_  
(City and State)

Date \_\_\_\_\_

The bidder is a corporation incorporated in the State (or Commonwealth) of \_\_\_\_\_ - a partnership - an individual. (Bidder must add and delete as necessary to make this sentence read correctly.)

(Note: If the bidder is a corporation, affix corporate seal and give below the names of its president treasurer, and general manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address, if different from business address.)

The required names and addresses of all persons interested in the foregoing Bid, as Principals, are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Add supplementary page if necessary)

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**CERTIFICATE OF AUTHORIZATION  
FOR  
BIDDING REPRESENTATIVE**

(Note: Bidder must complete for certification of authorized representative signing Bid.)

At a duly authorized meeting of the Board of Directors of the

\_\_\_\_\_ held on \_\_\_\_\_,  
(Name of Corporation) (Date)

at which all the Directors were present or waived notice, it was voted that

\_\_\_\_\_  
(Name of Authorized Representative) (Title)

of this company shall be, and hereby is, authorized to execute bidding documents, contracts and bonds in the name and on behalf of said company, and to affix the corporate seal thereto, and such execution of any contract obligation in this company's name on its behalf of such

\_\_\_\_\_ under seal of the company shall be valid and binding upon this company.  
(Title)

A true copy

ATTEST \_\_\_\_\_  
(Clerk)

Place of Business \_\_\_\_\_  
\_\_\_\_\_

I hereby certify that I am the clerk of the \_\_\_\_\_  
(Name of Corporation)

\_\_\_\_\_, that \_\_\_\_\_  
(Name of Authorized Representative)

is the duly elected \_\_\_\_\_ of said company, and that the  
(Title)

above vote has not been amended or rescinded and remains in full force and effect as of the date of this contract.

Corporate Seal

\_\_\_\_\_  
(Clerk)

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## STATEMENT OF BIDDERS' QUALIFICATIONS

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work, as bid upon, in accordance with the contract drawings and specifications. This statement must be notarized. All questions must be answered. Additional data may be submitted on separate attached sheets.

1. Name of Bidder\_\_\_\_\_
2. Permanent Main Office Address\_\_\_\_\_
3. Official Mailing Address For This Contract\_\_\_\_\_
4. When Organized?\_\_\_\_\_
5. Where Incorporated, If a Corporation\_\_\_\_\_
6. Years Contracting under Present Name\_\_\_\_\_
7. List contracts on hand, and those completed similar in nature to this kind of project.

Owner	Engineer	Contract	Description	Contract Amount	Completion Date
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

8. List any work the firm has failed to complete, state where and why.  
\_\_\_\_\_

9. If you have ever defaulted on any contract, state where and why.  
\_\_\_\_\_

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10. List full names and residences of all principals (i.e.: Officers, Directors, Partners, Owners) interested in this bid.

<u>Name</u>	<u>Residence</u>	<u>Title</u>	<u>Firm</u>

11. State name(s) and qualifications of resident supervisor(s) for this project.


12. List major equipment available for this project and identify ownership or rental.


13. Will you furnish a detailed financial statement and other information, requested by the Owner?

14. List bank references for verifying financial ability of your company.

<u>Name</u>	<u>Address</u>

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15. The undersigned hereby authorized and requests any person, firm or corporation, to furnish all information requested by the Owner and/or its designated agents relative to the recitals comprising this Statement of the Bidder's Qualifications.

Dated at \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_  
(Name of Bidder)

By: \_\_\_\_\_

\_\_\_\_\_  
(Title)

State of \_\_\_\_\_

County of \_\_\_\_\_

\_\_\_\_\_ being duly sworn in person, deposes and says

that he is \_\_\_\_\_ of \_\_\_\_\_,  
(Title) (Name of Bidder)

that he is the firm's duly authorized agent to execute these contract documents, and that the answers to the foregoing questions and all statements therein contained are correct and true.

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

(SEAL)

\_\_\_\_\_  
(Notary Public)

\_\_\_\_\_  
(My Commission Expires)

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### STATEMENT OF PROPOSED SUBCONTRACTORS

The following shall accompany the bid and is required as evidence of the bidder's qualifications to perform the work as bid upon, in accordance with the contract drawings and specifications. The Bidder must state the names and appurtenant information of all major subcontractors he proposed to use to complete the work as bid upon. Additional data may be submitted on separate attached sheets.

If subcontractors are not to be used to complete the Work and/or any portion thereof, as herein bid upon, the Bidder must acknowledge by writing "NONE" \_\_\_\_\_.

Description of Work \_\_\_\_\_

Approximate percentage of Total Bid \_\_\_\_\_

Proposed Subcontractor, Name \_\_\_\_\_

Address \_\_\_\_\_

Description of Work \_\_\_\_\_

Approximate percentage of Total Bid \_\_\_\_\_

Proposed Subcontractor, Name \_\_\_\_\_

Address \_\_\_\_\_

Description of Work \_\_\_\_\_

Approximate percentage of Total Bid \_\_\_\_\_

Proposed Subcontractor, Name \_\_\_\_\_

Address \_\_\_\_\_

Bidder to insert description of work, percentage of Total BID, and subcontractors' names as may be required.

This is to certify that all names of the above-mentioned subcontractors are submitted with full knowledge and consent of the respective parties.

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The Bidder warrants that none of the proposed subcontractors have any conflict of interest as respects this contract.

Date \_\_\_\_\_ Bidder \_\_\_\_\_  
(Name of Bidder)

By \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_  
(City and State)

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## **LABOR HARMONY AND OSHA 10 CERTIFICATION**

The undersigned certifies that they will conform to and provide documentation for the requirements as stated in MGL c. 30, §39S(a) as follows:

The bidder certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; and that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

---

Name of Contractor/Business

---

Signature of Authorized Representative of Contractor/Business

---

Date

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### **CERTIFICATE OF NON - COLLUSION**

Any person submitting a bid under this section shall, on such bid, certify the following: The undersigned certifies under penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business, or legal entity.

---

Name of Contractor/Business

---

Signature of Authorized Representative of Contractor/Business

---

Date

### **TAX COMPLIANCE CERTIFICATION**

Pursuant to MGL c. 62C, §49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors and withholding and remitting child support, and, subject to the conditions stated above, the contracting agency confirms with the Massachusetts Department of Revenue (DOR) that the person is in good standing with respect to all returns due and taxes payable to DOR as of the date of confirmation.

---

Name of Contractor/Business

---

Signature of Authorized Representative of Contractor/Business

---

Social Security or Federal Identification Number

---

Date

**END OF SECTION**

## SECTION 00400

### BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we the undersigned (Insert Name of Bidder) \_\_\_\_\_, as Principal, and (Insert Name of Surety) \_\_\_\_\_, as Surety, are hereby held and firmly bound and obligated unto the Town of Attleboro, Massachusetts, as Owner, in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), as liquidated damages for payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns. The condition of the above obligation is such that whereas the Principal has submitted to the City of Attleboro, Massachusetts a certain Bid attached hereto and hereby made a part hereof, to enter into a contract in writing, hereinafter referred to as the "AGREEMENT" and/or "Contract", for "City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive Contract".

NOW THEREFORE,

- (a) If said BID shall be rejected or withdrawn as provided in the INFORMATION FOR BIDDERS attached hereto or, in the alternative,
- (b) If said BID shall be accepted and the Principal shall duly execute and deliver the form of AGREEMENT attached hereto and shall furnish the specified bonds for the faithful performance of the AGREEMENT and/or Contract and for the payment for labor and materials furnished for the performance of the AGREEMENT and/or Contract,

then this obligation shall be void, otherwise it shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder in no event shall exceed the amount of this obligation.

The Surety, for value received, hereby agrees that the obligations of said Surety and its bond shall in no way be impaired or affected by any extensions of the time with which such BID may be accepted, and said Surety does hereby waive notice of any such extensions.

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IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, have duly executed this bond on the

\_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_.

(SEAL)

\_\_\_\_\_  
(Name of Principal) L.S.

BY: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Name of Surety (Seal)

BY: \_\_\_\_\_  
(Signature and Title)

BY: \_\_\_\_\_  
Attorney-In-Fact

Sealed and delivered in  
the presence of:

\_\_\_\_\_

\_\_\_\_\_

IMPORTANT: Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

If the Bond is signed on behalf of the Surety by an Attorney-In-Fact, there should be attached, a duly certified copy of his power of attorney showing his authority to sign such Bond.

**END OF SECTION**

## SECTION 00500

### CONTRACT AGREEMENT

#### CITY OF ATTLEBORO, MASSACHUSETTS INTERSECTION IMPROVEMENTS – ROUTE 123 AT RATHBUN-WILLARD DRIVE & BLACK OAK DRIVE CONTRACT

THIS AGREEMENT, is executed this \_\_\_\_\_ day of \_\_\_\_\_ in the year Two Thousand and **Twenty Two** (herein referred to as the "AGREEMENT") by and between the City of Attleboro, Massachusetts party of the first part, and \_\_\_\_\_ (Name of Contractor) party of the second part.

WITNESSETH, that the parties to these presents, each in consideration of the undertakings, promises, and agreements on the part of the other herein contained, have undertaken, promised, and agreed and do hereby undertake, promise, and agree, the party of the first part for itself, its successors and assigns, and the party of the second part for himself and his heirs, executors, administrators, successors and assigns, as follows:

1.01	Definitions	1.27	Changes Not to Affect Bonds
1.02	The Contract Documents	1.28	Claims for Damages
1.03	Obligations and Liability of Contractor	1.29	Abandonment of Work or Other Default
1.04	Authority of the Engineer	1.30	Prices for Work
1.05	Supervision of Work	1.31	Moneys May Be Retained
1.06	Insurance	1.32	Formal Acceptance
1.07	Patents	1.33	Progress Estimates
1.08	Compliance with Laws	1.34	Partial Acceptance
1.09	Provisions Required by Law Deemed Inserted	1.35	Final Estimate and Payment
1.10	Permits	1.36	Liens
1.11	Not to Sublet or Assign	1.37	Claims
1.12	Delay by Owner	1.38	Application of Moneys Retained
1.13	Time for Completion	1.39	No Waiver
1.14	Liquidated Damages	1.40	Liability of Owner
1.15	Night, Saturday, Sunday and Holiday Work	1.41	Guarantee
1.16	Employ Competent Persons	1.42	Return of Drawings
1.17	Employ Sufficient Labor and Equipment	1.43	Cleaning Up
1.18	Intoxicating Liquors and/or Drugs	1.44	Legal Address of Contractor
1.19	Access to Work	1.45	Headings
1.20	Examination of Work	1.46	Modification or Termination
1.21	Defective Work, Etc.	1.47	Direct Labor cost
1.22	Protection Against Water and Storm	1.48	Massachusetts Tax Laws
1.23	Right to Materials	1.49	Minority Business
1.24	Changes	1.50	Termination for Convenience
1.25	Extra Work	1.51	Equal Employment Opportunity...
1.26	Extension of Time on Account of Extra Work	1.52	Unlawful Conduct and Participation in Boycott

#### 1.01 DEFINITIONS

Wherever the words hereinafter defined or pronouns used in their stead occur in the Contract Documents, they shall have the following meaning indicated which shall be applicable to both the singular and plural thereof:

ADDENDA - Written or graphic instruments prior to the opening of Bids which Clarify, correct or change the Bidding Requirements or Contract Documents.

**AGREEMENT** - the written contract between Owner and Contractor covering the Work to be performed.

"AS DIRECTED," "AS ORDERED," "AS REQUESTED," "AS REQUIRED," "AS PERMITTED," or words of like import are used, it shall be understood that the direction, order, request, requirement, or permission of the Engineer is intended.

"APPROVED," "ACCEPTABLE," "SUITABLE," "SATISFACTORY," and words of like import shall mean approved by, acceptable to, suitable to, or satisfactory to the Engineer.

**APPLICATION FOR PAYMENT** - Form used by Contractor in requesting progress or final payments, format to be acceptable to the Engineer.

**BID** - The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

**BIDDER** - Any person, firm or corporation submitting a bid for the work.

**CHANGE ORDER** - A document recommended by the Engineer, which is signed by the Contractor and Owner authorizing the addition, deletion or revision in the Work, or adjustment in the Contract Price or Contract Time, issued on or after the effective date of the Agreement.

**CONTRACTOR** - The person, firm or corporation with whom the Owner has entered into the Agreement.  
**Contract Bonds** - Bid, Performance, and Labor and Materials Bonds and other instruments of security furnished by the Contractor and his surety in accordance with the Contract Documents.

**CONTRACT DOCUMENTS** - The Agreement, Addenda, Bid, Post Bid documentation submitted prior to the Notice Award, The Notice to Proceed, Bonds, General Conditions, Supplementary Conditions, The Specifications, the Drawings, all written Amendments, Change Orders, Field Orders, and Engineers written interpretations and clarifications.

**CONTRACT PRICE** - The total monies payable to the Contractor under the terms and conditions of the Contract Documents.

**CONTRACT TIME** - The number of calendar days stated in the Contract Documents for the completion of the Work.

**CONSTRUCTION SUPERINTENDENT** - That person designated by the Contractor to carry out the provisions of the Contract.

**DATUM OR LEVELS** - The figures given in the Contract and Specifications or upon the Drawings after the word elevation or abbreviation of it, shall mean the distance in feet above mean sea level, the base of the State in which the Work is located and the United States Geodetic Survey (U.S.G.S.).

**DRAWINGS** - The part of the Contract Drawings which show the characteristics and Scope of the Work to be performed and which have been prepared or approved by the Engineer.

**EARTH** - Wherever used as the name of an excavated material or material to be excavated, shall mean all kinds of material other than rock as defined in this section.

**ELEVATION** - The figures given on the Drawings or in the other Contract Documents after the word "elevation" or abbreviation of it shall mean the distance in feet above the datum adopted by the Engineer.

**ENGINEER** - The person, firm or corporation duly appointed by the Owner to undertake the duties and powers herein assigned to the Engineer, acting either directly or through duly authorized representatives. (For this Contract, BETA Group, Inc.)

**FIELD ORDER** - A written order issued by the Engineer which orders minor changes in the Work which do not involve a change in the Contract Price or an extension of the Contract time.

**GENERAL REQUIREMENTS** - Sections of Division 1 of the Specifications.

"HEREIN," "HEREINAFTER," "HEREUNDER," and words of like import shall be deemed to refer to the Contract Documents.

**NOTICE OF AWARD** - The written notice of the acceptance of the Bid from the Owner to the successful Bidder.

**NOTICE TO PROCEED** - Written communication issued by the Owner to the Contractor authorizing him to proceed with the Work and establishing the date of commencement of the Work.

**OWNER** - The public body or authority, corporation, association, firm or person with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.

**PROJECT OR CONTRACT** - The undertaking to be performed in the Contract Documents.



**PROJECT REPRESENTATIVE** - The authorized representative of the owner who is assigned to the project site or any part thereof.

**ROCK** - wherever used as the name of an excavated material to be excavated, shall mean only boulders and pieces of concrete and masonry exceeding 1 cu. yd. in volume, or igneous, sedimentary, metamorphic, and conglomerate rock which, in the opinion of the Engineer, requires, for its removal, drilling and blasting, wedging, sledging, barring, or breaking up with a power-operated tool. No soft or disintegrated rock which can be removed with a hand pick or power-operated excavator or shovel, no loose, shaken, or previously blasted rock or broken stone in rock fillings, or elsewhere, and no rock exterior to the maximum limits of measurement allowed, which may fall into the excavation, will be measured or allowed as "rock."

**SHOP DRAWINGS** - All drawings, diagrams, schedules and other data or information prepared for and submitted by the Contractor, to illustrate portions of the Work.

**SPECIFICATIONS** - The portions of the Contract documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

**SUBCONTRACTOR** - An individual, firm or corporation, approved by the Owner and Engineer having a direct contract with the Contractor or with any other Sub-Contractor for the performance of a part of the Work on the Project.

**SUBSTANTIAL COMPLETION** - Shall mean either that the Work required by the Contract has been completed except for Work having a contract price of less than one percent of the then adjusted total Contract Sum, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory Work items that do not materially impair the usefulness of the Work required by the Contract. Substantial Completion shall be conclusively determined by the Engineer after inspection of the Work.

**SUPPLEMENTARY CONDITIONS** - The part of the Contract Documents which amends or supplements the General Conditions.

**SUPPLIER** - Any person or organization who supplies materials or equipment for the Work, including that fabricated to a special design, but who does not perform labor at the site.

**WRITTEN NOTICE** - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed when posted by certified or registered mail to the said party at his last given address or delivered in person to said party or his authorized representative on the Work.

**WORK** - The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials and equipment into the construction, and performing or furnishing services and furnishing documents, all as required by the Contract Documents.

## 1.02 THE CONTRACT DOCUMENTS

A. The Contract Documents, as defined above, are sometimes herein referred to as the "Contract". The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of the AGREEMENT and the provisions of any of the other Contract Documents, the provisions of the AGREEMENT shall prevail.

1.02.1 Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the edition of the standard specification, manual, code or laws or regulations identified in the reference. In the event a particular edition is not identified, the reference shall mean the latest amended edition in effect at the time of receipt of the Bid. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the Owner, the Contractor or the Designer, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to the Engineer, or any of the Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the work or any duty or authority to undertake responsibility contrary to the provisions of the AGREEMENT.

## 1.03 OBLIGATIONS AND LIABILITY OF CONTRACTOR

1.03.1 The Contractor shall do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise

expressly provided herein) necessary and as herein specified for the proper performance and completion of the Work in the manner and within the time hereinafter specified, in strict accordance with the Drawings, Specifications and other Contract Documents, in conformity with the directions and to the satisfaction of the Engineer, and at the prices herein agreed upon therefor.

1.03.2 All parts of the Work and all fixtures, equipment, apparatus and other items indicated on the Drawings and not mentioned in the Specifications, or vice versa, and all work and material usual and necessary to make the work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether or not they are indicated on the Drawings or mentioned in the Specifications, shall be furnished and executed the same as if they were called for both by the Drawings and by the Specifications.

1.03.3 The Contractor shall coordinate his operations with those of any other contractors who may be employed on other work of the Owner, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials and equipment.

1.03.4 The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. Wherever and whenever necessary or required, he shall maintain fences, furnish watchmen, maintain lights, and take such other precaution as may be necessary to protect life and property.

1.03.5 The Contractor shall indemnify and save harmless the Owner and the Engineer and their officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the Work, whether or not due or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, his officers, agents, servants or employees, any of his subcontractors, or any of their respective officers, agents, servants or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings, provided, however, that the Contractor shall not be required to indemnify the Engineer, his officers, agents, servants or employees, against any such damages occasioned

solely by defects in maps, plans, drawings, designs or specifications prepared, acquired or used by the Engineer and/or solely by the negligence or fault of the Engineer; and provided further, that the Contractor shall not be required to indemnify the Owner, his officers, agents, servants or employees, against any such damages occasioned solely by acts or omissions of the Owner other than supervisory acts or omissions of the Owner in the Work.

1.03.6 The Contractor shall have complete responsibility for the Work and the protection thereof, and for preventing injuries to persons and damage to the Work and property and utilities on or about the Work, until final completion and final acceptance thereof. He shall in no way be relieved of his responsibility by and right of the Engineer to give permission or directions relating to any part of the Work, by any such permission or directions given, or by failure of the Engineer to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the Work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the Work is done being different from that indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes.

1.03.7 The Contractor shall conduct his operations so as not to damage existing structures or work installed either by him or by other contractors. In case of any such damage resulting from his operations, he shall repair and make good as new the damaged portions at his own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue liable for the damage caused.

1.03.8 The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, their officers, agents, servants and employees as he is for his own acts and omissions and those of his own officers, agents, servants and employees.

1.03.9 Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against the Owner therefor, other than for an extension of time, but shall have recourse solely to such other contractor or subcontractor.

1.03.10 If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the contractor or of any of his

subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage.

1.03.11 The Contractor agrees to and does hereby indemnify and save harmless the Owner from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

1.03.12 The Contractor shall promptly pay all federal, state and local taxes which may be assessed against him in connection with the Work or his operations under the AGREEMENT and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

1.03.13 Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material

1.03.13.1 The Owner shall be responsible for any Asbestos, PCBs, Petroleum, Hazardous Waste or Radioactive Material uncovered or revealed at the site which was not shown or indicated in Drawings or Specification or identified in the Contract Documents to be within the scope of the Work and which may present a substantial danger to persons or property exposed thereto in connection with the Work at the site. The Owner shall not be responsible for any such materials brought to the site by the Contractor, Subcontractors, Suppliers or anyone else for whom the Contractor is responsible.

1.03.13.2 To the fullest extent permitted by Laws and Regulations, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Engineer, Engineer's Consultants and the officers, directors, employees, agents other consultants and subcontractors of each and any of them from and against all claims, costs, losses and damages arising out of or resulting from such hazardous condition, provided that: (i) any such claim, cost, loss or damage is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (ii) nothing in this subparagraph shall obligate the Owner to indemnify any person or entity from and against the consequences of that person's or entity's own negligence.

#### 1.04 AUTHORITY OF THE ENGINEER

1.04.1 The Engineer shall be the sole judge of the intent and meaning of the Drawings and Specifications and his decisions thereon and his interpretation thereof shall be final, conclusive and binding on all parties.

1.04.2 The Engineer shall be the Owner's representative during the life of the Contract and he shall observe the Work in progress on behalf of the Owner. He shall have authority (1) to act on behalf of the Owner to the extent expressly provided in the Contract or otherwise in writing; (2) to determine the amount, quality, acceptability and fitness of all work, materials and equipment required by the Contract; and (3) to decide all questions which arise in relation to the Work, the execution thereof, and the fulfillment of the Contract.

1.04.3 The Contractor shall proceed without delay to perform the work as directed, instructed, determined or decided by the Engineer and shall comply promptly with such directions, instructions, determinations or decisions. If the Contractor has any objection thereto he may, within ten (10) days of having received any such direction, instruction, determination or decision, require that any such direction, instruction, determination or decision be put in writing and within ten (10) days after receipt of any such writing he may file a written protest with the Owner stating clearly and in detail his objections, the reasons therefor, and the nature and amount of additional compensation, if any, to which he claims he will be entitled thereby. A copy of such protest shall be filed with the Engineer at the same time it is filed with the Owner. Unless the Contractor requires that any such direction, instruction, determination or decision be put in writing within ten (10) days of having received such direction, instruction, determination or decision and unless the Contractor files such written protest with the Owner and Engineer within such ten (10) day period, he shall be deemed to have waived all grounds for protest of such direction, instruction, determination, or decision and all claims for additional compensation or damages occasioned thereby, and shall further be deemed to have accepted such direction, instruction, determination, or decision as being fair, reasonable, and finally determinative of his obligations and rights under the Contract.

#### 1.05 SUPERVISION OF WORK

1.05.1 The Contractor shall be solely responsible for supervision of the Work, shall give the work the constant attention necessary to ensure the expeditious and orderly progress thereof, and shall cooperate with the Engineer in every possible way.

1.05.2 At all times, the Contractor shall have his agent on the Work a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to execute the directions of the Engineer without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the Work without the prior written consent of the Engineer. If, in the opinion of the Engineer, the superintendent or any successor proves incompetent, the Contractor shall replace him with another person approved by the Engineer; such approval, however, shall in no way relieve or diminish the Contractor's responsibility for supervision of the Work.

1.05.3 Whenever the Contractor or his agent or superintendent is not present on any part of the Work where it may be necessary to give directions or instructions with respect to such work, such directions or instructions may be given by the Engineer to and shall be received and obeyed by the designated foreman or any other person in charge of the particular work involved.

## 1.06 INSURANCE

1.06.1 Before starting and until final completion and acceptance of the Work and expiration of the guarantee period provided for in the AGREEMENT the Contractor shall procure and maintain insurance of the types specified in paragraphs (1) to (11), inclusive, below, and to the limits for this insurance specified in Table A at the end of this section. All insurance shall be obtained from companies satisfactory to the Owner and Engineer.

1.06.2 Insurance shall be in such forms as will protect the Contractor from all claims and liability for damages for bodily and personal injury, including accidental death, and for property damage, which may arise from operations under the Contract, whether such operations be by himself, his subcontractors, or by anyone directly or indirectly employed or engaged by him.

1.06.3 The City of Attleboro, Massachusetts (Owner) and the Engineer shall be named as an "additionally insured".

1.06.4 All insurance policies provided by the Contractor shall include a "Waiver of Subrogation" endorsement for the Owner, Engineer and/or other third party entity.

1.06.5 The following types of insurance shall be provided on all policies:

1.06.5.1 Workmen's Compensation and Employer's Liability Insurance.

1.06.5.2 General Liability coverage, including Bodily Injury Insurance for operations and completed operations and Contractor's Protective Bodily Injury Insurance.

1.06.5.3 General Liability coverage, including Property Damage Insurance for operations and completed operations and Contractor's Protective Property Damage Insurance, each including coverage for injury to or destruction of wires or pipes and similar property and appurtenant apparatus and the collapse of or structural injury to any building or structure except those on which work under the Contract is being done. Blasting and explosion coverage shall be obtained if there is a need for blasting under the Contract, and no blasting shall be performed until such insurance has been secured.

1.06.5.4 Bodily Injury Insurance covering the operation of all motor vehicles owned by the Contractor.

1.06.5.5 Personal Injury Insurance to cover claims for personal injury and including claims brought by employees.

1.06.5.6 Property Damage Insurance covering the operation of all motor vehicles owned by the Contractor.

1.06.5.7 Insurance to cover bodily injuries and property damage resulting from the use of motor vehicles not owned by the Contractor, while such vehicles are being operated in connection with the prosecution of the Work.

1.06.5.8 Contractual Liability Insurance covering the liability assumed by the Contractor under the fifth paragraph of that subsection titled "Obligations and Liability of Contractor" of this AGREEMENT.

1.06.5.9 Owner's/Contractor's Protective Liability and Property Damage Insurance to protect the Owner and the Engineer against claims for Property damage and for bodily injuries, including accidental death, caused by the operations of the Contractor or his subcontractors on the Work. The policy shall indicate the Owner and the Engineer as the named insured. A copy of the policy shall be furnished to the Owner and a Certificate of Insurance shall be furnished to the Engineer.

1.06.5.10 Excess/Umbrella Liability Coverage shall be provided in accordance with the minimum limits stated in Table A.

1.06.5.11 Builders' Risk Insurance with an "All Risk" Installation Floater covering loss by fire and extended coverage in the completed value form in the amount of the total insurable value of all structures,

materials, and equipment to be built and installed. The insurance shall be obtained from a company satisfactory to the Owner. The policy shall indicate Owner, the Contractor, all subcontractors, and the Engineer as the named insured with loss payable to the Owner as Trustee. The policy shall provide for a 30-day notice to the Owner of cancellation or restrictive amendment. A copy of the policy shall be furnished to the Owner and a Certificate of Insurance shall be furnished to the Engineer. The insurance shall be obtained before the work is started and shall be maintained until the date of completion of the work as stated in the final estimate, or until the Owner occupies or otherwise take possession of the structure, whichever occurs first.

1.06.6 All policies shall be so written that the Owner will be notified in writing of cancellation or restrictive amendment at least 30 days prior to the effective date of such cancellation or amendment.

1.06.7 Certificates from the Contractor's insurance carriers stating the coverage provided, the limits of liability, and expiration dates shall be filed in triplicate with the Owner before operations are begun.

1.06.8 Certificates from the contractor naming the Owner, Town of Attleboro, Massachusetts and the Engineer as additionally insured must be received by the Owner prior to initiating the work.

1.06.9 Renewal certificates must be furnished by the Contractor prior to the expiration date of any of the initial insurances.

1.06.10 No insurance required or furnished hereunder shall in any way relieve the Contractor of or diminish any of his responsibilities, obligations and liabilities under the Contract.

#### 1.07 PATENTS

1.07.1 The Contractor's attention is directed to the following "Patent Indemnity Clause" illustrating the format and/or required wording therefore which shall be used by all manufacturers and/or suppliers, as deemed necessary by the Owner and Engineer, as an Indemnification and Hold Harmless Agreement.

1.07.2 This Agreement shall be accepted and approved in form by the Owner and Engineer prior to the approval and/or installation of the product.

#### PATENT INDEMNIFICATION

"In consideration for their purchase and use of the (Name of product and/or equipment) manufactured by (name of Manufacturer) and for other good and

valuable consideration, (Name of Manufacturer) agrees to defend and hold harmless (Name of Contractor), BETA Group, Inc., and the (Name of Owner), and their employees and agents, from and against any liability, loss, cost, expense or damage including reasonable attorneys' and accountants' fees incurred by these entities in defending or prosecuting any claim for such liability, loss, cost, expense or damage resulting or arising out of a claim that the use of the above mentioned product and/or equipment delivered hereunder directly infringes any United States Patent, provided that (Name of Manufacturer) is given authority, information, and assistance for the defense of such suit, and (Name of Manufacturer) shall pay all damages and costs assessed against the above named entities for the use of such produce and/or equipment provided, however, that this indemnification shall not apply to equipment of (Name of Contractor) design, and provided further that if the use of such product and/or equipment is enjoined in any suit, (Name of Manufacturer) shall at its own expense and its option either procure for (name of Contractor) the right to continue the normal use of such produce and/or equipment, replace said product and/or equipment, modify said equipment or refund the purchase price thereof; and provided further that (Name of Manufacturer) indemnity as to use shall not apply to infringement resulting from the use of the produce and/or equipment delivered hereunder in combination with other items where use of the product and/or equipment per se does not constitute infringement."

#### 1.08 COMPLIANCE WITH LAWS

1.08.1 The Contractor shall keep himself fully informed of all existing and future federal, state, and local laws, ordinances, rules, and regulations affecting those engaged or employed on the Work, the materials and equipment used in the Work or the conduct of the Work, and of all orders, decrees and other requirements of bodies of tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or other Contract Documents in relation to any such law, ordinance, rule, regulation, order, decree or other requirement, the Contractor shall forthwith report the same to the Engineer in writing. The Contractor shall at all times observe and comply with, and cause all his agents, with all such existing and future laws, ordinances, rules, regulations, orders, decrees and other requirements, and he shall protect, indemnify and save harmless the Owner, its officers, agents, servants and employees, from and against any

and all claims, demands, suits, proceedings, liabilities, judgements, penalties, losses, damages, costs and expenses, including attorneys' fees, arising from or based upon any violation or claimed violation of any such law, ordinance, rule, regulation, order, decree or other requirement, whether committed by the Contractor or any of his agents, servants, employees or subcontractors.

#### 1.09 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

1.09.1 Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though they were included herein. If through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the Contract shall forthwith be physically amended to make such insertion.

#### 1.10 PERMITS

1.10.1 The Contractor shall, at his own expense, take out and maintain all necessary permits from the county, municipal, or other public authorities; shall give the notices required by law; and shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the Work.

#### 1.11 NOT TO SUBLET OR ASSIGN

1.11.1 The Contractor shall constantly give his personal attention to the faithful prosecution of the Work, shall keep the same under his personal control, shall not assign the Contract or sublet the Work or any part thereof without the previous written consent of the Owner, and shall not assign any of the moneys payable under the Contract, or his claim thereto, unless by and with the like written consent of the Owner and the Surety on the Contract Bonds. Any assignment or subletting in violation hereof shall be void and unenforceable.

1.11.2 The Contractor shall not sublet or assign work to a subcontractor(s), for a total in excess of fifty (50) percent of the Contract Price, without prior written approval of the Owner and Engineer.

1.11.3 The Contractor shall be fully responsible to the Owner for the acts and omissions of his subcontractors, suppliers, and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons directly employed by him.

1.11.4 The Contractor shall cause appropriate provisions, and applicable State or Federal regulations, to be inserted in all subcontractors relative to the work to bind subcontractors to the Contractor by the terms of

the Contract Documents insofar as applicable to the work of subcontractors, and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

1.11.5 The Contractor's attention is directed to the fact that nothing contained in this Contract shall create any contractual relation between any subcontractor and the Owner.

#### 1.12 DELAY BY OWNER

1.12.1 The Owner may delay the beginning of the Work or any part thereof if the necessary lands or rights-of-way for such work shall not have been obtained. The Contractor shall have no claim for additional compensation or damages on account of such delay, but shall be entitled only to any extension of time as hereinafter provided.

#### 1.13 TIME FOR COMPLETION

1.13.1 The rate of progress shall be such that the Work shall be performed and completed in accordance with the Contract before the expiration of the time limit stipulated in Table A at the end of this section, except as otherwise expressly provided herein.

1.13.2 It is agreed that the rate of progress herein required has been purposely made low enough to allow for the ordinary and foreseeable delays incident to construction work of this character. No extension of time will be given for ordinary or foreseeable delays, inclement weather, or accidents and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress and completing the Work within the stipulated time limit.

1.13.3 If delays are caused by acts of God, acts of Government, unavoidable strikes, extra work, or other cause or contingencies clearly beyond the control or responsibility of the Contractor, the Contractor may be entitled to additional time to perform and complete the Work, provided that the Contractor shall, within ten (10) days from the beginning of such delay notify the Owner in writing, with a copy to the Engineer, of the cause and particulars of the delay. Upon receipt of such notification, the Owner shall review and evaluate the cause and extent of the delay. If, under the terms of the AGREEMENT, the delay is properly excusable, the Owner will, in writing, appropriately extend the time for completion of the Work. (This paragraph will be interpreted to include delays in receipt of equipment provided that the Contractor placed his order and submitted shop drawings for such equipment promptly after execution of the Contract, that he has shown due diligence in following the progress of the order, and

that the time required for delivery is in accordance with conditions generally prevailing in the industry.) The Contractor agrees that he shall not have or assert any claim for nor shall he be entitled to any additional compensation or damages on account of such delays.

1.13.4 The time in which the Work is to be performed and completed is of the essence of this AGREEMENT.

#### 1.14 LIQUIDATED DAMAGES

1.14.1 In case the Contractor fails to complete the Work satisfactorily on or before the date of completion fixed herein or as duly extended as hereinbefore provided, the Contractor agrees that the Owner shall deduct from the payments due the Contractor each month the sum set forth in Table A at the end of this section for each calendar day of delay, which sum is agreed upon not as a penalty, but as fixed and liquidated damages for each day of such delay. If the payments due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor, and, in case such damages shall exceed the amount of all moneys due or to become due the Contractor, the Contractor or his Surety shall pay the balance to the Owner.

#### 1.15 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

1.15.1 No work shall be done at night, on Saturday on Sunday or on a holiday except (1) usual protective work, such as pumping and the tending of lights, (2) work done in case of emergency threatening injury to persons or property, or (3) if all of the conditions set forth in the next paragraph below are met.

1.15.2 No work other than that included in (1) and (2) above shall be done at night except when (a) in the sole judgment of the Owner, the work will be of advantage to the Owner and can be performed satisfactorily at night, (b) the work will be done by a crew organized for regular and continuous night work, and (c) in the sole judgment of the Owner and Engineer, adequate noise prevention measures are incorporated into the Work by the Contractor to minimize any noise impact within the work area and (d) the Owner has given written permission for such night work. The Contractor is responsible for obtaining all permits and approvals required.

#### 1.16 EMPLOY COMPETENT PERSONS

1.16.1 The Contractor shall employ only competent persons on the Work and shall not employ persons or means which may cause strikes, work stoppages or any disturbances by persons employed by the Contractor,

any subcontractor, the Owner, the Engineer or any other contractor. Whenever the Engineer notifies the Contractor in writing that in his opinion any person on the Work is incompetent, unfaithful, disorderly, or otherwise unsatisfactory, or not employed in accordance with the provisions of the Contract, such person shall be discharged from the Work and shall not again be employed on it, except with the written consent of the Engineer.

#### 1.17 EMPLOY SUFFICIENT LABOR AND EQUIPMENT

1.17.1 If in the sole judgment of the Engineer the Contractor is not employing sufficient labor, plant, equipment or other means to complete the Work within the time specified, the Engineer may, after giving written notice, require the Contractor to employ such additional labor, plant, equipment and other means as the Engineer deems necessary to enable the Work to progress properly.

#### 1.18 INTOXICATING LIQUORS AND/OR DRUGS

1.18.1 The Contractor shall not sell and shall neither permit nor suffer the introduction and/or use of intoxicating liquors and/or drugs upon or about the Work.

#### 1.19 ACCESS TO WORK

1.19.1 The Owner, the Engineer, and their officers, agents, servants and employees may at any and all times and for any and all purposes, enter upon the Work and the site thereof and the premises used by the Contractor, and the Contractor shall at all times provide safe and proper facilities therefor.

#### 1.20 EXAMINATION OF WORK

1.20.1 The Engineer shall be furnished by the Contractor with every reasonable facility for examining and inspecting the Work and for ascertaining that the Work is being performed in accordance with the requirements and intent of the Contract, even to the extent of requiring the uncovering or taking down portions of furnished work by the Contractor.

1.20.2 Should the work thus uncovered or taken down prove satisfactory, the cost of uncovering or taking down and the replacement thereof shall be considered as extra work unless the original work was done in violation of the Contract in point of time or in the absence of the Engineer or his inspector and without his written authorization, which case said cost shall be borne by the Contractor. Should the work uncovered or taken down prove unsatisfactory, said cost shall likewise borne by the Contractor.

1.20.3 Examination of inspection of the Work shall not relieve the Contractor of any of his obligations to perform and complete the Work as required by the Contract.

#### 1.21 DEFECTIVE WORK, ETC.

1.21.1 Until acceptance and during the applicable guarantee period thereafter, the Contractor shall promptly, without charge, repair, correct or replace work, equipment, materials, apparatus or parts thereof which are defective, damaged or unsuitable or which in any way fail to comply with or be in strict accordance with the provisions and requirements of the Contract or applicable guarantee and shall pay to the Owner all resulting costs, expenses, losses or damages suffered by the Owner.

1.21.2 If any material, equipment, apparatus or other items brought upon the site for use or incorporation in the Work, or selected for the same, is rejected by the Engineer as unsuitable or not in conformity with the Specifications or any of the other Contract Documents, the Contractor shall forthwith remove such materials, equipment, apparatus and other items from the site of the Work and shall at his own cost and expense make good and replace the same and any material furnished by the Owner which shall be damaged or rendered defective by the handling or improper installation by the Contractor, his agents, servants, employees or subcontractors.

#### 1.22 PROTECTION AGAINST WATER AND STORM

1.22.1 The Contractor shall take all precautions necessary to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor shall at his own cost and expense make such repairs or replacements or rebuild such parts of the Work as the Engineer may require in order that the finished Work may be completed as required by the Contract.

#### 1.23 RIGHT TO MATERIALS

1.23.1 Nothing in the Contract shall be construed as vesting in the Contractor any right of property in the materials, equipment, apparatus and other items furnished after they have been installed or incorporated in or attached or affixed to the Work or the site, but all such materials, equipment, apparatus and other items shall, upon being so installed, incorporated, attached or affixed, become the property of the Owner. Nothing in this subsection shall relieve the Contractor of his duty to protect and maintain all such materials, equipment, apparatus and other items.

#### 1.24 CHANGES

1.24.1 The Owner, through the Engineer, may make changes in the Work and in the Drawings and Specifications therefor by making alterations therein, additions thereto or omissions therefrom. All work resulting from such changes shall be performed and furnished under the pursuant to the terms and conditions of the Contract. If such changes result in an increase or decrease in the Work to be done hereunder, or increase or decrease the quantities thereof, adjustment in compensation shall be made therefor at the unit prices stipulated in the Contract for such work, except that if unit prices are not stipulated for such work, compensation for additional or increased work shall be made as provided hereinafter under the subsection titled "Extra Work"; and for eliminated or decreased work the Contractor shall allow the Owner a reasonable credit as determined by the Engineer.

1.24.2 Except in an emergency endangering life or property, no change shall be made unless in pursuance of a written order from the Engineer authorizing the change, and no claim for additional compensation shall be valid unless the change is so ordered.

1.24.3 The Contractor agrees that he shall neither have nor assert any claim for or be entitled to any additional compensation for damages or for loss of anticipated profits on work that is eliminated.

#### 1.25 EXTRA WORK

1.25.1 The Contractor shall perform any extra work (work in connection with the Contract but not provided for herein) when and as ordered in writing by the Engineer, at the unit prices stipulated in the Contract for such work or, if none are so stipulated, whether (a) at the price agreed upon before such work is commenced and named in the written order for such work, or (b) if the Engineer so elects, for the reasonable cost of such work, as determined by the contractor and approved by the Engineer, plus a percentage of such cost, as set forth below. No extra work shall be paid for unless specifically ordered as such in writing by the Engineer.

1.25.2 The Contractor shall submit claim for any extra work within fourteen (14) calendar days of performing said extra work.

1.25.3 The cost of extra work done under (b) above shall include the reasonable cost to the Contractor of materials used and equipment installed, common and skilled labor, and foremen, and the fair rental of all machinery and equipment used on the extra work for the period of such use.



1.25.4 At the request of the Engineer, the Contractor shall furnish itemized statements for the cost of the extra work ordered as above and give the Engineer access to all records, accounts, bills and vouchers and correspondence relating thereto.

1.25.5 The Contractor may include in the cost of extra work the amounts of additional premiums, if any, (other than premiums on bonds) paid on the required insurance on account of such extra work, of Social Security or other direct assessments upon the Contractor's payroll by Federal or other properly authorized public agencies, and of other approved assessments when such assessments are not normally included in payments made by the Contractor directly to his employees, but in fact are, and are customarily recognized as, part of the cost of doing work.

1.25.6 The fair rental hourly rate for all machinery and equipment shall be based upon the most recent edition of "Rental Rate Blue Book" published by Equipment Watch or a similar publication approved by the Engineer. Hourly rental rates for machinery and equipment shall be developed by dividing the monthly Blue Book rates by 176 hours per month plus Estimated Hourly Operating Costs (FHWA rate). Rate Adjustment tables shall be utilized for equipment model year and region of operation. If said extra work requires the use of machinery or equipment not already on the site of the Work the cost of transportation, not exceeding a distance of 100 miles, of such machinery or equipment to and from the Work shall be added to the fair monthly rental; provided, however, that this shall not apply to machinery or equipment already required to be furnished under the terms of the Contract.

1.25.7 The Contractor shall not include in the cost of extra work any cost or rental of small tools, building, or any portion of the time of the Contractor, his superintendent, or his office and engineering staff.

1.25.8 To the cost of extra work done by the Contractor's own forces under (b) above (determined as stated above), the Contractor may add 15 percent to cover his overhead, use of capital, the premium on the Bonds as assessed upon the amount of this extra work, and profit.

1.25.9 In the case of extra work done under (b) by a subcontractor the subcontractor shall compute, as above, his cost for the extra work, to which he may add 15 percent as in the case of the Contractor. The Contractor shall be allowed an additional 5 percent of the subcontractor's initial cost for the extra work prior to the 15 percent adjustment, to cover the costs of the Contractor's overhead use of capital, the premium on the Bonds as assessed upon the amount of this work,

and profit. Said subcontractor's cost must be reasonable and approved by the Engineer.

1.25.10 If extra work is done under (b) above, the Contractor and/or subcontractor shall keep daily records of such extra work. The daily record shall include the names of men employed, the nature of the work performed, and hours worked, materials and equipment incorporated, and machinery or equipment used, if any, in the prosecution of such extra work. This daily record, to constitute verification that the work was done, must be signed both by the Contractor's authorized representative and by the Engineer. A separate daily record shall be submitted for each Extra Work Order.

#### 1.26 EXTENSION OF TIME ON ACCOUNT OF EXTRA WORK

1.26.1 When extra work is ordered near the completion of the Contract or at any time during the progress of the Work which unavoidably increases the time for the completion of the Work, and extension of time shall be granted as hereinbefore provided.

#### 1.27 CHANGES NOT TO AFFECT BONDS

1.27.1 It is distinctly agreed and understood that any changes made in the Work or the Drawings or Specifications therefor (whether such changes increase or decrease the amount thereof or the time required for its performance) or any changes in the manner of time of payments made by the Owner to the Contractor, or any other modifications of the Contract, shall in no way annul, release, diminish or affect the liability of the Surety on the CONTRACT BONDS given by the Contractor, it being the intent hereof that notwithstanding such changes the liability of the Surety on said bonds continue and remain in full force and effect.

#### 1.28 CLAIMS FOR DAMAGES

1.28.1 If the Contractor makes claim for any damages alleged to have been sustained by breach of contract or otherwise, he shall, within ten (10) days after occurrence of the alleged breach or within ten (10) days after such damages are alleged to have been sustained, whichever date is the earlier, file with the Engineer a written, itemized statement of the details of the alleged breach and the details and amount of the alleged damages. The Contractor agrees that unless such statement is made and filed as so required, his claim for damages shall be deemed waived, invalid and unenforceable, and that he shall not be entitled to any compensation for any such alleged damages. Within ten (10) days after the timely filing of such statement, the Engineer shall file with the Owner a copy of the

statement, together with his recommendations for action by the Owner.

1.28.2 The Contractor shall not be entitled to claim any additional compensation for damages by reason of any direction instruction, determination or decision of the Engineer, nor shall any such claims be considered, unless the Contractor shall have complied in all respects with the Article titled "Authority of the Engineer", including, but not limited to the filing of a written protest in the manner and within the time therein provided.

#### 1.29 ABANDONMENT OF WORK OR OTHER DEFAULT

1.29.1 If the Work shall be abandoned, or any part thereof shall be sublet without previous written consent of the Owner, or the Contract or any moneys payable hereunder shall be assigned otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing, that the conditions herein specified as to rate of progress are not being complied with, or that the Work or any part thereof is being unnecessarily or unreasonably delayed, or that the Contractor has violated or is in default under any of the provisions of the Contract, or if the Contractor becomes bankrupt or insolvent or goes or is put into liquidation or dissolution, either voluntarily or involuntarily, or petitions for an arrangement or reorganization under the Bankruptcy Act, or makes a general assignment for the benefit of creditors or otherwise acknowledges insolvency, the happening of any of which shall be and constitute a default under the Contract, the Owner may notify the Contractor in writing, with a copy of such notice mailed to the Surety, to discontinue all Work or any part thereof; thereupon the Contractor shall discontinue such Work or such part thereof as the Owner may designate; and the Owner may, upon giving such notice, by contract or otherwise as it may determine, complete the Work or such part thereof and charge the entire cost and expense of so completing the Work or such part thereof to the Contractor. In addition to the said entire cost and expense of completing the Work, the Owner shall be entitled to reimbursement from the Contractor and the Contractor agrees to pay to the Owner any losses, damages, costs and expenses, including attorney's fees, sustained or incurred by the Owner by reason of any of the foregoing causes. For the purposes of such completion the Owner may for itself or for any Contractors employed by the Owner take possession of and use or cause to be used any and all materials, equipment, plant, machinery, appliances, tools, supplies and such other items of every description that may be found or located at the site of the Work.

1.29.2 All costs, expenses, losses, damages, attorney's fees and any and all other charges incurred by the Owner under this subsection shall be charged against the Contractor and deducted and/or paid by the Owner out of any moneys due of payable or to become due or payable under the Contract to the Contractor; in computing the amounts chargeable to the Contractor the Owner shall not be held to a basis of the lowest prices for which the completion of the Work or any part thereof might have been accomplished, but all sums actually paid or obligated therefor to effect its prompt completion shall be charged to and against the account of the Contractor. In case the costs, expenses, losses, damages, attorney's fees and other charges together with all payments theretofore made to or for the account of the Contractor are less than the sum which would have been payable under the Contract if the Work had been properly performed and completed by the Contractor, the Contractor shall be entitled to receive the difference, and, in case such costs, expenses, losses, damages, attorneys' fees and other charges, together with all payments theretofore made to or for the account of the Contractor, shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

#### 1.30 PRICES FOR WORK

1.30.1 The Owner shall pay and the Contractor shall receive the prices stipulated in the BID made a part hereof as full compensation for everything performed and furnished and for all risks and obligations undertaken by the Contractor under and as required by the Contract.

#### 1.31 MONEYS MAY BE RETAINED

1.31.1 The Owner may at any time retain from any moneys which would otherwise be payable hereunder so much thereof as the Owner may deem necessary to complete the Work hereunder and to reimburse it for all costs, expenses, losses, damage and damages chargeable to the Contractor hereunder, in accordance with the States General Laws.

#### 1.32 FORMAL ACCEPTANCE

1.32.1 This Agreement constitutes an entire contract for one whole and complete Work or result. Fixing of the date of completion and acceptance of the Work or a specified part thereof shall only be effective when accomplished by a writing specifically so stating and signed by the Owner.

#### 1.33 PROGRESS ESTIMATES

1.33.1 Once a month, except as hereinafter provided, the Engineer shall make an estimate in writing of the total amount and value of the work done to the first of

the month by the Contractor. The Owner shall retain a percentage of such estimated value, as set forth in Table A at the end of this section, as part security for fulfillment of the Contract by the Contractor and shall deduct from the balance all previous payments made to the Contractor, all sums chargeable against the Contractor and all sums to be retained under the provisions of the Contract.

1.33.2 Estimates of lump-sum items shall be based on a schedule dividing each such item into its appropriate component parts together with a quantity and a unit price for each part so that the sum of the products of prices and quantities will equal the Contract price for the item. This schedule must be submitted by the Contractor for and must have the approval of the Engineer before the first estimate becomes due.

1.33.3 If the Engineer determines that the progress of the Work will be benefited by the delivery to the site of certain materials and equipment, when available, in advance of actual requirement therefor and if such materials and equipment are delivered and properly stored, protected and insured as determined by the Engineer, the cost to the Contractor or subcontractor as established by invoices or other suitable vouchers satisfactory to the Engineer, less the retained percentages as above provided, may be included in the progress estimates; provided always that there be duly executed and delivered by the Contractor to the Engineer at the same time a Bill of Sale in form satisfactory to the Owner, transferring and assigning to the Owner full ownership and title to such materials or equipment.

1.33.4 The Owner shall pay monthly to the Contractor in accordance with General Laws Chapter 30, Section 39, as amended:

1.33.4.1 Within fifteen (15) days (twenty-four (24) days in the case of the Commonwealth) after receipt from the Contractor, at the place designated by the Owner if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the Owner will make periodic payment to the Contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the Contractor has title or to which a subcontractor has title and has authorized the Contractor to transfer title to the Owner, less (1) a retention based on its estimate of the fair value of its claims against the Contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 39F and less (3) a retention not exceeding five

percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within 65 days after (a) the Contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of original contract price, or (b) the Contractor substantially completes the work and the Owner takes possession for occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section 39 F, or based on the record of payments by the Contractor to the subcontractors under this contract if such record of payment indicates that the Contractor has not paid subcontractors as provided in section 39 F. If the Owner fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate than charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until payment delivered or mailed to the Contractor; provided, that no interest shall be due, in any event, on the amount due on periodic estimate for final payment until 15 days (24 days in the case of the Commonwealth) after receipt of such a periodic estimate from the Contractor, at the place designated by the Owner if such a place is so designated. The Contractor agrees to pay to each subcontractor a portion of any such interest in accordance with the amount due each subcontractor.

1.33.4.2 Forthwith after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the Contractor.

1.33.4.3 Not later than the 65th day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the Owner shall pay that amount to the Contractor. The Contractor shall forthwith pay to the subcontractor the full amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the Contractor.

1.33.4.4 Each payment made by the Owner to the Contractor pursuant to subparagraphs (2) and (3) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the Contractor for the account of that subcontractor; and the Owner shall take reasonable steps to compel the Contractor to make each such payment to each such subcontractor. If the Owner has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the Contractor or which is to be included in a payment to the Contractor for payment to the subcontractor as provided in subparagraphs (2) and (3), the Owner shall act upon the demand as provided in this section.

1.33.4.5 If, within 70 days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the Owner as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the Owner. The demand shall be by a sworn statement delivered to or sent by certified mail to the Owner, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the 70th day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the Owner and delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the Owner and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the subcontractor.

1.33.4.6 Within 15 days after receipt of the demand by the Owner, but in no event prior to the 17th day after substantial completion of the subcontract work, the Owner shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the Owner as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the Contractor in the

sworn reply; provided, that the Owner shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (5). The Owner shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

1.33.4.7 The Owner shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (6) in an interest-bearing joint account in the names of the Contractor and the subcontractor in a bank in Massachusetts selected by the Owner or agreed upon by the Contractor and the subcontractor and shall notify the Contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

1.33.4.8 All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (7) shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the Owner to the Contractor to the extent of such payment.

1.33.4.9 The Owner shall deduct from payments to a Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (7), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.

1.33.4.10 If the subcontractor does not receive payment as provided in subparagraph (2) or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (2), the subcontractor may demand direct payment by following the procedure in subparagraph (5) and the Contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic

estimate from the Contractor. Thereafter the Owner shall proceed as provided in subparagraph (6), (7), (8), and (9).

1.33.4.11 "Subcontractor" as used in subparagraph 10, shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the Owner in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the Contractor.

#### 1.34 PARTIAL ACCEPTANCE

1.34.1 The Owner may, at any time in a written order to the Contractor (1) declare that he intends to use a specified part of the Work which in his opinion is sufficiently complete, in accordance with the Contract Documents, to permit its use; (2) enclose a tentative list of items remaining to be completed or corrected, and (3) fix the date of acceptance of that specified part of the Work.

1.34.2 Within 45 days after acceptance under this subsection, the Engineer shall make an estimate in writing of the amount and value of the part of the Work so accepted. The Owner shall pay said amount to the Contractor after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained under the provisions of the Contract, said payment to be made at the time of the next monthly progress estimate.

1.34.3 Acceptance by the Owner under this subsection shall not relieve the Contractor of any obligations under the Contract Documents except to the extent agreed upon in writing between the Owner and the Contractor.

1.34.4 The Owner shall have the right to exclude the Contractor from any part of the Work which has been accepted, but the Owner will allow the Contractor reasonable access thereto to complete or correct items on the tentative list.

#### 1.35 FINAL ESTIMATE AND PAYMENT

1.35.1 As soon as practicable (but not more than sixty-five (65) days after final completion of the Work), the Engineer shall make a final estimate in writing of the quantity of Work done under the Contract and the amount earned by the Contractor.

1.35.2 The Owner shall pay to the Contractor the entire amount found by the Engineer to be earned and due hereunder after deducting therefrom all previous payments, all charges against the Contractor as provided for hereunder, and all amounts to be retained

under the provisions of the Contract. Except as in this subsection otherwise provided, such payment shall be made not later than fifteen (15) days after but in no event before, the expiration of the time within which claims for labor performed or materials or equipment furnished must be filed under the applicable Lien Law, or, if such time is not specified by law, the expiration of thirty (30) days after the completion of the Engineer's final estimate.

1.35.3 All quantities shown on progress estimates and all prior payments shall be subject to correction in the final estimate and payment as determined by the Engineer.

1.35.4 The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor under or by virtue of this Agreement; and upon satisfactory completion of the work performed under this Agreement, as a condition before final payment under this Agreement the Contractor shall execute and deliver to the Owner a release of all claims against the Owner arising under or by virtue of, this Agreement, except claims which are specifically exempted by the Contractor to be set forth herein. Unless otherwise provided in this Agreement, by State law or otherwise expressly agreed to be the parties to this Agreement, any payment, including final payment under, this Agreement or settlement upon termination of this Agreement shall not constitute a waiver of the Owner's claims against the Contractor or his sureties under this Agreement or applicable Performance and Labor and Materials Bonds.

#### 1.36 LIENS

1.36.1 If at any time any notices of lien are filed and labor performed or materials or equipment manufactured, furnished, or delivered to or for the Work, the Contractor shall, at its own cost and expense, promptly discharge, remove or otherwise dispose of the same, and until such discharge, removal or disposition, the Owner shall have the right to retain from any moneys payable hereunder an amount which, in its sole judgement, it deems necessary to satisfy such liens and pay the costs and expenses, including attorneys' fees, of defending any actions brought to enforce the same, or incurred in connection therewith or by reason thereof.

#### 1.37 CLAIMS

1.37.1 If at any time there be any evidence of any claims for which the Contractor is or may be liable or responsible hereunder, the Contractor shall promptly settle or otherwise dispose of the same, and until such claims are settled or disposed of, the Owner may retain

from any moneys which would otherwise be payable hereunder so much thereof as, in its sole judgement, it may deem necessary to settle or otherwise dispose of such claims and to pay the costs and expenses, including attorney's fees, of defending any actions brought to enforce such claims, or incurred in connection therewith or by reason thereof.

#### 1.38 APPLICATION OF MONEYS RETAINED

1.38.1 The Owner may apply any moneys retained hereunder to reimburse itself for any and all costs, expenses, losses, damage and damages, liabilities, suits, judgements and awards incurred, suffered or sustained by the Owner and chargeable to the Contractor hereunder or as determined hereunder.

#### 1.39 NO WAIVER

1.39.1 Neither the inspection by the Owner or the Engineer, nor any order, measurement, approval, determination, decision or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or use, occupancy, possession or acceptance of the whole or any part of the Work by the Owner, nor any extension of time, nor any other act or omission of the Owner or of the Engineer shall constitute or be deemed to be an acceptance of any defective or improper work, materials, or equipment nor operate as a waiver of any requirement or provision of the Contract, nor of any remedy, power or right of or herein reserved to the Owner, nor of any right to damages for breach of contract. Any and all rights and/or remedies provided for in the Contract are intended and shall be construed to be cumulative; and, in addition to each and every other right and remedy provided for herein or by law, the Owner shall be entitled as of right to a writ of injunction against any breach or threatened breach of the Contract by the Contractor, by his subcontractors or by any other person or persons.

#### 1.40 LIABILITY OF OWNER

1.40.1 No person, firm or corporation, other than the Contractor who signed this Contract as such, shall have any interest herein or right hereunder. No claim shall be made or be valid either against the Owner or any agent of the Owner and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money, except as herein provided. The acceptance by the Contractor of the payment as fixed in the final estimate shall operate as and shall be a full and complete release of the Owner and of every agent of the Owner of and from any and all claims, demands, damages and liabilities of, by or to the Contractor for anything done or furnished for or arising out of or relating to or by reason of the Work or for or on

account of any act or neglect of the Owner or of an agent of the Owner or of any other person, arising out of, relating to or by reason of the Work, except the claim against the Owner for the unpaid balance, if any there be, of the amounts retained as herein provided.

#### 1.41 GUARANTEE

1.41.1 The Contractor guarantees that the Work and services to be performed under the Contract, and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same, shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Drawings, Specifications, and other Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This guarantee shall be for a period of one year from and after the date of completion and acceptance of the Work as stated in the final estimate. If part of the Work is accepted in accordance with that subsection of this AGREEMENT titled "Partial Acceptance", the guarantee for that part of the Work shall be for a period of one year from the date fixed for such acceptance.

1.41.2 If at any time within the said period of guarantee any part of the Work requires repairing, correction or replacement, the Owner may notify the Contractor in writing to make the required repairs, correction, or replacements. If the Contractor neglects to commence making such repairs, correction, or replacements to the satisfaction of the Owner within three (3) days from the date of receipt of such notice, or having commenced fails to prosecute such Work with diligence, the Owner may employ other persons to make the same, and all direct and indirect costs of making said repairs, correction or replacements, including compensation for additional professional services, shall be paid by the Contractor.

#### 1.42 RETURN OF DRAWINGS

1.42.1 All Drawings furnished by the Owner or the Engineer to the Contractor may be used only in connection with the prosecution of the Work and shall be returned by the Contractor upon completion of the Work.

#### 1.43 CLEANING UP

1.43.1 The Contractor at all times shall keep the site of the Work free from rubbish and debris caused by his operations under the Contract. When the Work has been completed, the Contractor shall remove from the site of the Work all of his plant, machinery, tools, construction equipment, temporary work, and surplus

materials so as to leave the Work and the site clean and ready for use.

#### 1.44 LEGAL ADDRESS OF CONTRACTOR

1.44.1 The Contractor's business address and his office at or near the site of the Work are both hereby designated as places to which communications shall be delivered. The depositing of any letter, notice, or other communication in a postpaid wrapper directed to the Contractor's business address in a post office box regularly maintained by the Post Office Department or the delivery at either designated address of any letter, notice, or other communication by mail or otherwise shall be deemed sufficient service thereof upon the Contractor, and the date of such service shall be the date of receipt. The first-named address may be charged at any time by an instrument in writing, executed and acknowledged by the Contractor delivered to the Engineer. Service of any notice, letter, or other communication upon the Contractor personally shall likewise be deemed sufficient service.

#### 1.45 HEADINGS

1.45.1 The headings or titles of any section, subsection, paragraph, provision, or part of the Contract Documents shall not be deemed to limit or restrict the content, meaning or effect of such section, subsection, paragraph, provision or part.

#### 1.46 MODIFICATION OR TERMINATION

1.46.1 Except as otherwise expressly provided herein, the Contract may not be modified or terminated except in writing signed by the parties hereto.

#### 1.47 DIRECT LABOR COST

1.47.1 Direct labor cost percentage for change orders shall be \_\_\_\_ percent. (Direct labor cost percent shall be established following award and prior to execution of the Contract).

#### 1.48 MASSACHUSETTS TAX LAWS

1.48.1 The Contractor shall provide a statement that indicates compliance with all the requirements of Massachusetts General Law Chapter 62C.

#### 1.49 MINORITY BUSINESS

1.49.1 The goal for minority business enterprise (MBE/WBE) participation for this contract is a minimum of zero percent (0 %) MBE and zero percent (0 %) WBE participation, on the basis of the total dollars paid. The Contractor shall take all affirmative steps necessary to achieve this goal, and shall provide reports documenting the portion of contract and subcontract dollars paid to minority businesses, and its

efforts to achieve the goals, with each invoice submitted or at such greater intervals as specified by the (Insert client name). The Contractor shall require similar reports from its subcontractors.

#### 1.50 TERMINATION FOR CONVENIENCE

1.50.1 This Agreement may be terminated by the Owner upon not less than seven days' written notice for the Owner's convenience. In the case of termination for convenience, the Owner shall be responsible for amounts due the Contractor for work performed through the date of termination, provided that the Contractor shall submit a request for payment in accordance with the provisions hereof. The Contractor shall have no other claim for payments due with respect to such termination including any claim for lost profits with respect to the balance of the project.

#### 1.51 EQUAL EMPLOYMENT OPPORTUNITY, ANTIDISCRIMINATION AND AFFIRMATIVE ACTION

1.51.1 The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age, or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

#### 1.52 UNLAWFUL CONDUCT AND PARTICIPATION IN BOYCOTT

1.52.1 The Contractor shall not participate in or cooperate with an international boycott, as defined in Section 999 (b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

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IN WITNESS WHEREOF, the parties to this AGREEMENT have hereunto set their hands and seals, and have executed, or caused to be executed by their duly authorized officials, the AGREEMENT in Four (4) copies, each of which shall be deemed an original, as of the day and year first above-written.

WITNESSES

City of Attleboro, Massachusetts

(Owner - party of the first part)

(SEAL)

BY: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

ATTEST:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Contractor - party of the second part)

(SEAL)

BY: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Address)

ATTEST:

\_\_\_\_\_  
(Signature)

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## CERTIFICATE OF OWNER'S LEGAL COUNSEL

I, the undersigned, \_\_\_\_\_ the duly authorized and acting legal representative of the \_\_\_\_\_, acting herein through its \_\_\_\_\_, do hereby certify as follows:

I have examined the foregoing contract and surety bonds and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

By: \_\_\_\_\_  
(Signature)

Date: \_\_\_\_\_

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Address)

\_\_\_\_\_  
(City, State, Postal code)

### Auditor's/Accountant's Certification

Pursuant to M.G.L. c.44, s31C, I certify that an appropriation has been made in the total amount of the contract.

\_\_\_\_\_  
(Signature)

PAGE BREAK

**CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION  
For AGREEMENT**

State of \_\_\_\_\_)

County \_\_\_\_\_)

ON THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 20 \_\_\_\_\_, BEFORE ME  
PERSONALLY

came \_\_\_\_\_ to me known, who being me duly

sworn, did depose and say as follows:

That he resides at \_\_\_\_\_

and is the \_\_\_\_\_

of \_\_\_\_\_

the corporation described in and which executed the foregoing instrument; that he knows the corporate seal of said corporation; that the seal affixed to the foregoing instrument is such corporate seal and it was so affixed by order of the Board of Directors of said corporation; and that by the like order he signed thereto his name and official designation.

\_\_\_\_\_  
Notary Public

(Seal)

My commission expires \_\_\_\_\_

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**TABLE A**

Agreement Subsection Reference	Item	Minimum limits
1.06	Workman's Compensation and Employer's Liability Insurance	As required by the law of the Commonwealth of Massachusetts
1.06	General Liability including Contractor's Protective, Completed Operations and Contractual Liability	<p>Bodily Injury/Property Damage including C.U. Coverage</p> <hr/> <p><b>\$1,000,000</b> (Each Occurrence)</p> <hr/> <p><b>\$2,000,000</b> (Aggregate)</p> <hr/> <p>Blasting and explosion coverage shall be obtained if there is a need for blasting under the contract.</p>
1.06	Personal Injury Insurance	<b>\$2,000,000</b> (Aggregate)
1.06	Automobile Liability including coverage for owned, hired or borrowed vehicles	<p>Bodily Injury/Property Damage</p> <hr/> <p><b>\$1,000,000</b> Combined Single Limit (Each Occurrence)</p>
1.06	Owner's/Contractor's Protective (OCP) Liability & Property Damage	<p>Bodily Injury/Property Damage</p> <hr/> <p><b>\$3,000,000</b> (Each Occurrence)</p> <p><b>\$3,000,000</b> (Aggregate)</p>
1.06	Excess/Umbrella Liability Coverage	<p><b>\$5,000,000</b> (Each Occurrence)</p> <p><b>\$5,000,000</b> (Aggregate)</p>
1.06	Builder's Risk Insurance (If Applicable)	Total insurable value of all structures, materials, and equipment to be built and installed.
1.13	a) Time of Completion - Total Contract	<b>Within 110 consecutive working days after the date specified in the Notice to Proceed. Project must be substantially completed and traffic signal at Route 123/Rathbun-Willard Drive/Black Oak Drive intersection must be fully operational by August 26, 2022</b>

1.14	Liquidated Damages for each consecutive calendar day of delay in completion time	\$ 1,200.00
1.33	Percentage of Progress Estimates to be Retained	5%

**END OF SECTION**

**SECTION 00600**

**CONTRACT BONDS**

**PERFORMANCE BOND**

(NOTE: This Bond is issued simultaneously with the attached Labor and Materials Bond in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_  
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (**or Commonwealth**) of \_\_\_\_\_,

and having a usual place of business at \_\_\_\_\_,

\_\_\_\_\_

as Principal, and \_\_\_\_\_, a corporation duly organized

under the Laws of the State (**or Commonwealth**) of \_\_\_\_\_,

and duly authorized to do business in the Commonwealth of Massachusetts,

and having a usual place of business at \_\_\_\_\_

as Surety, are holden and stand firmly bound and obligated unto City of Attleboro Massachusetts, as obligee, in the sum of

\_\_\_\_\_  
lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, be means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated \_\_\_\_\_, has entered into a contract with the said obligee for "City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive Contract" in the City of Attleboro Massachusetts, a copy of which agreement is attached hereto and by references made a part hereof.

NOW THEREFORE, THE CONDITION of this obligation is such that if the Principal shall well and truly keep and fully and faithfully perform all of the terms and conditions of said AGREEMENT and of the "Contract Documents" referred to in said AGREEMENT (which collectively are hereinafter and in

said AGREEMENT sometimes referred to as the "Contract") and all modifications thereof on the Principal's part to be performed, this obligation shall be void; otherwise it shall remain in full force and effect.

Whenever the said Principal shall be, and declared by the Owner to be, in default under the said Contract,

the Owner having performed the Owner's obligations thereunder Surety, for value received, shall promptly remedy the default, or, at the option of the Owner, shall promptly.

- (a) Complete the said AGREEMENT and/or Contract in accordance with its terms and conditions, or
- (b) Obtain a bid or bids for submission to and the approval of the Owner for completing the said AGREEMENT and/or Contract and any modifications thereof in accordance with the terms and conditions thereof, and upon determination by the Owner and the Surety of the lowest responsible and acceptable bidder, arrange for a contract between such bidder and the Owner, and make available to the Owner as the work progresses (even though there should be default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less a sum that shall be equal to the difference between the Contract price as fixed and provided in said AGREEMENT and/or Contract or any modifications thereof to be paid thereunder to the Principal and the amount previously paid by the Owner to and/or for the account of and/or chargeable against the Principal, but not exceeding (including other costs and damages for which the Surety may be liable hereunder) the amount set forth in the first paragraph hereof.

The Surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way effect the Surety's obligations on this bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

No right of action shall accrue on this Bond to or for the use of any persons other than the Owner named herein or the heirs, executors, administrators, successors and assigns of the Owner.

IN WITNESS WHEREOF, we have hereunto set our hands and seals to \_\_\_\_\_

\_\_\_\_\_ counterparts of this bond, this \_\_\_\_\_ day of \_\_\_\_\_,

in the year Two Thousand and \_\_\_\_\_.

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Surety (SEAL)

\_\_\_\_\_  
Surety (SEAL)

**NOTE:**

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Date of Bond must not be prior to the date of Contract.

**Important**

Surety Companies executing BONDS must appear on the U.S. Treasury Department's most current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Performance Bond is Directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

PAGE BREAK

## LABOR AND MATERIALS BOND

(NOTE: This Bond is issued simultaneously with the attached Performance Bonds in favor of the Owner.)

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_  
(an individual, a partnership, a corporation)

duly organized under the Laws of the State (or **Commonwealth**) of \_\_\_\_\_,

having a usual place of business at \_\_\_\_\_,

\_\_\_\_\_

as Principal, and \_\_\_\_\_ a corporation duly organized

under the Laws of the State (or **Commonwealth**) of \_\_\_\_\_,

and duly authorized to do business in the Commonwealth of Massachusetts,

and having a usual place of business at \_\_\_\_\_,

as Surety, are holden and stand firmly bound and obligated unto the City of Attleboro Massachusetts,  
Massachusetts, as obligee, in the sum of

\_\_\_\_\_  
lawful money of the United States of America, to and for the true payment whereof we bind ourselves and, each of us, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal, be means of a written AGREEMENT (which together with the Contract Documents in said AGREEMENT referred to are collectively sometimes referred to as the "Contract") dated \_\_\_\_\_, has entered into a contract with the said obligee for "City of Attleboro, Massachusetts, Intersection Improvements – Route 123 at Rathbun-Willard Drive & Black Oak Drive Contract" in the City of Attleboro Massachusetts, a copy of which agreement is attached hereto and by references made a part hereof.

NOW, THEREFORE, THE CONDITION of this obligation is such, that if the Principal shall promptly make payments to all claimants as hereinafter defined, for all labor performed or furnished and for all materials and equipment furnished for or used in or in connection with the Work called for by said AGREEMENT and/or Contract and any modifications thereof, including lumber used but not incorporated in said Work, and for the rental or hire of vehicles, tools and other appliances and equipment furnished for or used in connection with said Work, this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, materials and/or equipment used or reasonably required for use in the performance of the said Work, labor and materials being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental or



equipment directly applicable to the said AGREEMENT and/or Contract and any modifications thereof.

- (b) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials or equipment were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.
- (c) No suit or action shall be commenced hereunder by any claimant.

Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: the Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials or equipment for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials or equipment were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the said Work is located, save that such service need not be made by a public officer;

After the expiration of one (1) year following the date on which the Principal ceased work on said AGREEMENT and/or Contract and any modifications thereof, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the State in which the said Work, or any part thereof, is situated, or in the United States District Court for the district in which the said Work, or any part thereof, is situated, and not elsewhere.

- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said AGREEMENT and/Contract or said Work, whether or not claim for the amount of such lien be presented under and against this bond.

The surety, for value received, agrees further that no changes in, omissions from, or alterations, modifications or additions to the terms and provisions of said AGREEMENT and/or Contract or the Work to be performed thereunder, and that no extensions of time given or changes made in the manner or time of making payments thereunder, shall in any way affect the Surety's obligations on this Bond, and the Surety hereby waives notice of any such changes, omissions, alterations, modifications, additions or extensions.

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IN WITNESS WHEREOF, we have hereunto set our hands and seals to \_\_\_\_\_  
counterparts of this Bond, this \_\_\_\_\_ day of \_\_\_\_\_, in  
the year Two Thousand and \_\_\_\_\_.

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Principal (SEAL)

\_\_\_\_\_  
Surety (SEAL)

\_\_\_\_\_  
Surety (SEAL)

**NOTE:**

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized officer or officers.

If this Bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his power of attorney showing his authority to sign such Bonds.

There should be executed an approximate number of counterparts of the Bond corresponding to the number of counterparts of the AGREEMENT.

Date of Bond must not be prior to the date of Contract.

**Important**

Surety Companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

The attention of the Surety Companies and Principal executing this Labor and Materials Bond is directed to the fact that said Bond shall remain in full effect throughout the life of any guaranty or warranty periods stipulated in the Contract Documents and/or Agreement.

PAGE BREAK

**CERTIFICATE OF ACKNOWLEDGMENT OF CONTRACTOR IF A CORPORATION  
For CONTRACT BONDS**

State of \_\_\_\_\_

County of \_\_\_\_\_

On this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_\_, before  
me personally came \_\_\_\_\_ to me known, who being by me duly  
sworn, did depose and say as follows:

That he resides at \_\_\_\_\_

and is the \_\_\_\_\_

of \_\_\_\_\_

the corporation described in and which executed the foregoing instrument; that he knows the  
corporate seal of said corporation; that the seal affixed to the foregoing instrument is such  
corporate seal and it was so affixed by order of the Board of Directors of said corporation; and  
that by the like order he signed thereto his name and official designation.

\_\_\_\_\_  
Notary Public (Seal)

My commission expires \_\_\_\_\_

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**STATE TAX CERTIFICATE**

Pursuant to M.G.L., Ch. 62C, sec. 49A, I certify under the penalties of perjury that I, to the best of my knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

\_\_\_\_\_  
Social Security Number \*  
Or Federal Identification Number \*

\_\_\_\_\_  
Signature of Individual or  
Corporate Name

by: \_\_\_\_\_  
Corporate Office (if applicable)

\* Submission of a Social Security Number or a Federal Identification Number is voluntary.

**END OF SECTION**

## SECTION 00700

### GENERAL CONDITIONS

- 1.01 General Provisions
- 1.02 Definitions
- 1.03 Materials and Equipment
  - A. General
  - B. Handling
  - C. Storage of Excavated Material
  - D. Inspection
  - E. Inspection Away from Site
  - F. Samples
  - G. Shop testing
- 1.04 Contractor's Shop and Working Drawings
- 1.05 Occupying Private Land
- 1.06 Interference with and Protection of Streets
- 1.07 Safety
- 1.08 Existing Facilities
  - A. Dimensions of Existing Structures
  - B. Proposed Pipe Location
  - C. Interference with Existing Works
  - D. Existing Utilities or Connections
  - E. Failure to Repair
  - F. Disturbance of Bounds
- 1.09 Work to Conform
- 1.10 Planning and Progress Schedules
- 1.11 Precautions During Adverse Weather
- 1.12 Temporary Heat
- 1.13 Electrical Energy
- 1.14 Certificates of Conformance
- 1.15 Patents
- 1.16 "Or Equal" Clause
- 1.17 Additional or Substitute Bonds
- 1.18 Separate Contracts
- 1.19 Payrolls of Contractor and Subcontractors
- 1.20 Payments by Contractor
- 1.21 "Dig Safe" Law
- 1.22 Fire Prevention and Protection
- 1.23 Dust Control
- 1.24 Disposal of Debris
- 1.25 Night, Saturday, Sunday and Holiday Work
- 1.26 Length of Work Day
- 1.27 Hurricane Protection
- 1.28 Reduction in Scope of Work

#### 1.01 GENERAL PROVISIONS

A. The duties and obligations imposed by these General Conditions will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

B. Sections of Division 1, General Requirements govern the execution of the Work of all sections of the specifications.

C. The Specifications are written in imperative and streamlined form. This imperative language is directed to the Contractor, unless stated otherwise.

#### 1.02 DEFINITIONS

A. Wherever the words as listed in subsection 1.01 of the AGREEMENT or pronouns used in their stead occur in the Contract Documents, they shall have the meanings as given in the AGREEMENT.

#### 1.03 MATERIALS AND EQUIPMENT

##### A. General

1. Unless otherwise provided in the Contract Documents, only new materials and equipment shall be incorporated in the Work.

2. As soon as possible after execution of the AGREEMENT, submit to the Engineer the names and addresses of the manufacturers and suppliers of all materials and equipment proposed to be incorporated into the Work.

3. When shop and working drawings are required as specified below, submit, prior to the submission of such drawings, data in sufficient detail to enable the Engineer to determine whether the manufacturer and/or the supplier have the ability to furnish a product meeting the Specifications.

4. Submit data relating to the materials and equipment proposed to be incorporated into the Work in sufficient detail to enable the Engineer to identify and evaluate the particular product and to determine whether it conforms to the Contract requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.

##### B. Handling

1. Handle, haul, and distribute materials and all surplus materials on the different portions of the Work, required to complete the Work in accordance with the Contract Documents.

2. Provide suitable storage room for materials and equipment during the progress of the Work, and be responsible for the protection, loss of, or damage to materials and equipment furnished under this Contract, until the final completion and acceptance of the Work.

3. Pay all storage and demurrage charges by transportation companies and vendors.

#### C. Storage of Excavated Material

1. Place excavated materials and equipment to be incorporated in the Work so as not to injure any part of the Work or existing facilities and so that free access can be had at all times to all parts of the Work and to all public utility installations in the vicinity of the Work.

2. Materials shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

#### D. Inspection

1. All materials and equipment furnished by the Contractor to be incorporated in the Work shall be subject to the inspection of the Engineer.

2. No material shall be processed or fabricated for the Work or delivered to the work site without prior concurrence of the Engineer.

3. Facilities and labor for the storage, handling, and inspection of all materials and equipment shall be furnished by the Contractor.

4. Defective materials and equipment shall be removed immediately from the site of the Work.

#### E. Inspection away from Site

1. If work to be done, away from the construction site, is to be inspected on behalf of the Owner during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Engineer of the place and time where such fabrication, manufacture, testing, or shipping is to be done. Such notice shall be in writing and delivered to the Engineer in ample time, as determined solely by the Engineer, so that the necessary arrangements for the inspection can be made.

#### F. Samples

1. Submit samples of materials for tests, as the Engineer deems necessary to demonstrate conformance with the Specifications. Such samples,

including concrete test cylinders, shall be furnished, taken, stored, packed, and shipped by the Contractor as directed by the Engineer.

2. Furnish suitable molds for making concrete test cylinders. Except as otherwise expressly specified, the Owner shall make arrangements for, and pay for, the tests.

3. Pack samples so as to reach their destination in good condition, and label to indicate the material represented, the name of the building or work and location for which the material is intended, and the name of the Contractor submitting the sample. To ensure consideration of samples, notify the Engineer by letter that the samples have been shipped and properly describe the samples in the letter. Send letter of notification separate from the samples.

4. Submit data and samples, or place his orders, sufficiently early to permit consideration, inspection and testing before the materials and equipment are needed for incorporation in the Work. The consequences for failure to do so shall be the Contractor's sole responsibility.

5. In order to demonstrate the proficiency of workmen, or to facilitate the choice among several textures, types, finishes, surfaces, etc., provide such samples of workmanship of wall, floor, finish, etc., as may be required.

6. After review of the samples, data, etc. the materials and equipment used for the Work shall in all respects conform therewith.

#### G. Shop Testing

1. When required, furnish to the Engineer in triplicate, sworn copies of manufacturer's shop or mill tests (or reports from independent testing laboratories) relative to materials, equipment performance ratings, and concrete data.

#### 1.04 CONTRACTOR'S SHOP AND WORKING DRAWINGS

A. Submit shop drawings to the Engineer for review and approval.

B. All submittals will be identified as the Engineer may require and in the number of copies also as required by the Engineer.

C. The data shown on the Shop Drawings will be complete regarding quantities, dimensions, specified performance and design criteria, materials and other

data as particular to the Work that the Contractor proposes to provide.

#### 1.05 OCCUPYING PRIVATE LAND

A. Entering or occupying with men, tools, materials, or equipment, any land outside the rights-of-way or property of the Owner (except after written consent from the proper parties) will not be permitted. A copy of the written consent shall be given to the Engineer.

#### 1.06 INTERFERENCE WITH AND PROTECTION OF STREETS

A. Obtain permits from the governing authorities prior to obstructing any portion of a street, road, or private way. If any street, road or private way is rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as ordered by the governing authorities.

B. Maintain streets, roads, private ways, and walks not closed in a passable and safe condition,

C. Provide at least 24 hours in advance, notice to the Owner, Police, Fire and School Departments in writing, with a copy to the Engineer, if the closure of a street or road is necessary. Cooperate with all Departments in the establishment of alternate routes and provide adequate detour signs, plainly marked and well lighted, in order to minimize confusion.

#### 1.07 SAFETY

A. Take all precautions and provide safeguards to prevent personal injury and property damage. Provide protection for all persons including but not limited to employees and employees of other contractors and subcontractors; members of the public; and employees, agents and representatives of the Owner, the Engineer, and regulatory agencies that may be on or about the Work. Provide protection for all public and private property including but not limited to structures, pipes, and utilities, above and below ground.

B. Provide and maintain all safety equipment such as fences, barriers, signs, lights, walkways, guards and fire prevention and fire-fighting equipment.

C. Comply with all applicable Federal, State and local laws, ordinances, rules and regulations and lawful orders of all authorities having jurisdiction for the safety of persons and protection of property.

D. Designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This responsible person shall have the authority to take immediate action to correct unsafe or hazardous conditions and to enforce safety precautions and programs.

#### 1.08 EXISTING FACILITIES

##### A. Dimensions of Existing Structures

1. Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the Work, verify such dimensions and locations in the field before the fabrication of any material or equipment which is dependent on the correctness of such information.

##### B. Proposed Pipe Location

1. Exterior pipelines will be located substantially as indicated on the Drawings, but the right is reserved to the Owner, acting through the Engineer, to make such modifications in location as may be found desirable to avoid interference with existing structures or for other reasons. Where fittings, etc., are noted on the Drawings, such notation is for the Contractor's convenience and does not relieve him for laying and jointing different or additional items where required.

2. Small interior piping is indicated diagrammatically on the Drawings, and the exact location is to be determined in the field. Piping shall be arranged in a neat, compact, and workmanlike manner, with a minimum of crossing and interlacing, so as not to interfere with equipment or access way, and, in general, without diagonal runs.

##### C. Interference with Existing Works

1. Conduct operations so as to interfere as little as possible with existing works. Develop a program, in cooperation with the Engineer and interested officials, which shall provide for the construction and putting into service of the new works in the most orderly manner possible. This program shall be adhered to except as deviations therefrom are expressly permitted. All work of connecting with, cutting into, and reconstructing existing pipes or structures shall be planned to interfere with the

operation of the existing facilities for the shortest time when the demands on the facilities best permit such interference, even though it may be necessary to work outside of normal working hours to meet these requirements. Electrical connections should be coordinated with the Owner so as to minimize disruption of normal plant operations. Before starting work which will interfere with the operation of existing facilities, perform preparatory work and see that all tools, materials and equipment are made ready and at hand.

2. Repair utilities damaged by the Contractors operations during the progress of the work, and be responsible for correcting all damages to existing utilities and structures at no additional expense to the Owner. Contact the proper utility or authority to correct or make any changes due to utility or other obstructions during the work but the entire responsibility and expense shall be with the Contractor.

3. Make such minor modifications in the work relating to existing structures as may be necessary, without additional compensation.

4. Submit no claim for additional compensation by reason of delay or inconvenience in adapting his operations to the need for continuous flow of sewage.

#### D. Existing Utilities or Connections

1. The location of existing underground pipes, conduits, and structures, as shown, has been collected from the best available sources. The Owner, together with its agents, does not imply nor guarantee the data and information in connection with underground pipes, conduits, structures and such other parts as to their completeness, nor their locations as indicated. The Contractor shall assume that there are existing water, sewer, gas and other utility connections to each and every building enroute, whether they appear on the drawings or not. An expense and/or delay occasioned by utilities and structures, or damage thereof, including those not shown, shall be the responsibility of the Contractor, at no additional expense to the Owner.

2. Above ground utilities may be present in the areas of the proposed Work. Take all necessary actions and/or precautions, including, but not limited to, utility company notification and necessary relocations (both temporary and permanent), to insure proper protection of those aboveground utilities and appurtenances to be affected by his operations. All costs associated with the aboveground utilities shall be paid by the Contractor at no additional expense to the Owner.

3. If and when encountered, existing utilities shall be properly supported and protected during the construction work and the Engineer shall be notified accordingly. The operation of existing utilities shall not be interrupted except with written permission of the operator and owner of such utilities. Allow ample time for all measures as may be required for the continuance of existing utility operations. Take extreme precautions to minimize disruption of utilities. Make prompt and full restitution for repairs by others for all disruptions caused by operations required to perform the Work.

4. Comply with all requirements of utility organizations involved.

#### E. Failure to Repair

1. Any emergency rising from the interruption of electric, telephone, gas, water, or sewer service due to the activities of the Contractor, shall be repaired by the Contractor as quickly as is possible.

2. If and when, in the opinion of the Owner, the Contractor is not initiating repair work as expeditiously as possible upon notification to do so, the Owner, may at his own option, make the necessary repairs using his own forces or those of others. The cost of such repairs shall be subtracted from the payments due to the Contractor.

#### F. Disturbance of Bounds

1. Replace all bounds disturbed during the construction operation, at no additional cost to the Owner. The bounds shall be relocated by a land surveyor approved by the Engineer and registered in the State that the Work is to be done.

#### 1.09 WORK TO CONFORM

A. During its progress and on its completion, the Work shall conform to the lines, levels, and grades indicated on the Drawings or given by the Engineer and shall be built in strict accordance with the Contract Documents and the directions given from time to time by the Engineer.

B. All work done without instructions having been given therefore by the Engineer, without proper lines or levels, or performed during the absence of the Engineer, will not be estimated or paid for except when such work is authorized by the Engineer in writing. Work so done may be ordered uncovered or taken down, removed, and replaced at the Contractor's expense.



#### 1.10 PLANNING AND PROGRESS SCHEDULES

A. Before starting the Work and from time to time during its progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the Work and the various steps he intends to take.

B. Within 14 calendar days after the date of formal execution of the AGREEMENT, the Contractor shall prepare and submit to the Engineer (a) a written schedule fixing the dates on which additional drawings, if any, will be needed by the Contractor and (b) a written schedule fixing the respective dates for the start and completion of various parts of the Work. Each such schedule shall be subject to review from time to time during the progress of the Work.

#### 1.11 PRECAUTIONS DURING ADVERSE WEATHER

A. During adverse weather and against the possibility thereof, take all necessary precautions so that the Work may be properly done and satisfactory in all respects. When required by the manufacturer of the material or equipment to be installed, protection shall be provided by use of tarpaulins, wood and building-paper shelters, or other suitable means.

B. During cold weather, materials shall be preheated, if required, and the materials and adjacent structure into which they are to be incorporated shall be made and kept sufficiently warm so that a proper bond will take place and a proper curing, aging, or drying will result. Protected spaces shall be artificially heated by suitable means that will result in a moist or dry atmosphere according to the particular requirements of the work being protected. Ingredients for concrete and mortar shall be sufficiently heated so that the mixture will be warm throughout when used.

#### 1.12 TEMPORARY HEAT

A. If temporary heat is required for the protection of the Work, provide and install suitable heating apparatus, provide adequate and proper fuel, and shall maintain heat as required.

B. Temporary heating apparatus shall be installed and operated in such manner that finished work will not be damaged.

#### 1.13 ELECTRICAL ENERGY

A. Make all necessary applications and arrangements and pay all fees and charges for electrical energy for power and light necessary for the proper completion of the Work and during its entire progress. Provide and pay for all temporary wiring, switches, connections, and meters.

B. Provide sufficient electric lighting so that all work may be done in a workmanlike manner when there is not sufficient daylight.

#### 1.14 CERTIFICATES OF CONFORMANCE

A. Furnish to the Engineer, in the manner as directed and prior to actual installation, notarized certificates of conformance for all materials to be furnished under this Contract. The notarized certificates of conformance shall state that the material to be furnished meets or exceeds all requirements specified under the Contract Documents. When so directed, the manufacturer's notarized certificates of conformance, certifying that the materials meet the requirements specified shall accompany each shipment of material. Unless otherwise specifically specified and/or directed by the Engineer, all testing of materials required under this Contract shall be provided by the Contractor at no additional expense to the Owner.

#### 1.15 PATENTS

A. Pay, at no additional expense to the Owner, all applicable royalties and license fees associated with the materials and construction methods to be used under this Contract. Defend all suits or claims for infringements of any patent rights, and save the Owner and Engineer harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or product of a particular manufacturer (s) is specifically specified with no option to the Contractor. However, if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner.

B. Refer to Specification Section 00500 Article 1.07, Patents, regarding the Contractor's responsibilities for any patent rights associated with the materials and construction methods to be used under this Contract.

#### 1.16 "OR EQUAL" CLAUSE

A. Whenever a material or article required is specified or shown on the drawings by using the name of the proprietary product of a particular manufacturer or vendor, any material or article which will perform adequately, in the Engineer's sole judgment and/or opinion, the duties imposed by the general design may be considered equal and satisfactory providing the material or article so proposed is of equal substance. It shall not be purchased or installed without his written approval. In all cases new material shall be used in the project.

B. If more than one brand, name of material, device, or piece of equipment is shown or specified, each should be regarded as the equal of the other. Any other brand, make of material, device or equipment, which in the opinion of the OWNER and/or ENGINEER, is the recognized equal of that specified (considering quality, workmanship, and economy of operation), and is suitable for the purpose intended, may be accepted.

C. ENGINEER will be allowed a reasonable time within which to evaluate submittals for Substitute Items. ENGINEER will be the sole judge of acceptability. No "Or Equal" or Substitute Item will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any "or equal" or substitute. ENGINEER will record time required by ENGINEER and ENGINEER's Consultants in evaluating substitutes proposed or submitted by CONTRACTOR and in making changes to the Contract Documents. Whether or not ENGINEER accepts a Substitute Item so proposed or submitted by CONTRACTOR, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's Consultants for evaluating each such proposed Substitute Item.

#### 1.17 ADDITIONAL OR SUBSTITUTE BONDS

A. If at any time the Owner, for justifiable cause, shall be or become dissatisfied with any Surety or Sureties than upon the performance or payment bonds, the Contractor shall, within five (5) calendar days after notice from the Owner so to do, substitute an acceptable bond (or bonds) in such form and sum and signed by such other Surety or Sureties as may

be acceptable to the Owner. The Contractor shall pay the premiums on such bonds with no additional expense to the Owner. No further payments shall be deemed due nor will be made until the new Surety or Sureties shall have furnished such as acceptable bond to the Owner.

#### 1.18 SEPARATE CONTRACTS

A. The Owner reserves the right to let other contracts in connection with the construction of the contemplated work of this project or contiguous projects of the Owner. The Contractor, therefore, will afford any such other contractors reasonable opportunity for the introductions and storage of their materials and the execution of their work, will properly connect and coordinate his work with theirs, and will not commit or permit any act which will interfere with the performance of their work.

B. Coordinate operations with those of other contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work.

C. It is essential that all parties interested in the project cooperate to the end that the entire project will be brought to a successful conclusion as rapidly as possible, but the Owner cannot guarantee that no interference or delay will be caused thereby. Interference and delay resulting from such cooperation shall not be basis of claims against the Owner.

#### 1.19 PAYROLLS OF CONTRACTOR AND SUBCONTRACTORS

A. The Contractor and each of his Subcontractors shall prepare his payrolls on forms prescribed and in accordance with instructions to be furnished by the Owner. Within seven (7) days after the regular payment date of the payroll, the Contractor shall deliver to the Owner, with copies to the Engineer, a certified legible copy or copies of each such payroll. Each such payroll shall contain the statement required by the Federal Regulations issued pursuant to the "Anti-Kickback Statute", (48 Stat. 948; 18 U.S.C. 874; 40 U.S.C. 276C).

B. Carrying any person on his payrolls not employed by him will not be permitted. Carrying employees of a subcontractor on his payrolls will not be permitted, but such employees must be carried on the payrolls of the employing subcontractor.

C. Each Contractor or Subcontractor shall preserve his weekly payroll records for a period of three (3) years from the date of completion of the Contract. The payroll records shall set out accurately and completely the name, occupational classification, and hourly wage rate of each employee, hours worked by him during the payroll period and full weekly wages earned by him, and deductions made from such weekly wages and the actual weekly wages paid to him. Such payroll records shall be made available at all times for inspection by the Owner or his authorized representatives, the Engineer or by agents of the United States Department of Labor.

#### 1.20 PAYMENTS BY CONTRACTOR

A. Pay for all traffic control, safety, transportation and utility services not later than the 20th day of the calendar month following that in which services are rendered. Reimbursable costs for services rendered, as specified in the Contract Documents, shall not be incorporated into partial payment estimates until such time that the Contractor submits to the Engineer actual paid invoices from those in which services were rendered.

#### 1.21 "DIG SAFE" LAW

A. Before proceeding with construction operations, the Contractor shall notify the State of Massachusetts Underground Plant Damage Prevention Systems (DIG SAFE at 811), and shall make such supplemental investigations, including exploratory excavations, by hand digging, as he deems necessary to uncover and determine the exact locations of utilities and structures, and shall have no claims for damages due to encountering subsurface structures or utilities in locations other than that shown on the drawings, or which were made known to the Contractor prior to construction operations. The Contractor shall be responsible and liable for all damages to the existing utilities and structures.

B. Before commencing with the construction of any work, identify any water main, gas main, telephone duct, electric duct, and/or other utility present which is or could be in conflict with the proposed work.

C. Relocation of the affected utilities shall be done as directed by the Owner and in accordance with the requirements of the utility company.

D. The attention of the Contractor is directed to the fact that certain utility companies may not fall under

the provisions of "DIG SAFE". Individual utility company notifications by the Contractor shall be necessary to insure proper notification and protection of all existing utilities affected by this Contract.

#### 1.22 FIRE PREVENTION AND PROTECTION

A. State and municipal rules and regulations with respect to fire prevention, fire-resistant construction and fire protection shall be strictly adhered to and all work and facilities necessary therefore shall be provided and maintained by the Contractor in an approved manner.

B. Provide fire protection equipment such as water tanks, hoses, pumps, extinguishers, and other materials, and apparatus, for the protection of the contract work, and adjacent property. Trained personnel experienced in the operation of all fire protection equipment and apparatus shall be available on the site whenever work is in progress, and at such other times as may be necessary for the safety of the public and the work.

#### 1.23 DUST CONTROL

A. Exercise every precaution and means to prevent and control dust arising out of all construction operations from becoming a nuisance to abutting property owners or surrounding neighborhoods. Pavements adjoining pipe trench shall be kept clean of excess materials wherever and whenever directed by the Engineer. Repeated daily dust control treatment shall be provided to satisfactorily prevent the spread of dust until permanent pavement repairs are made and until earth stockpiles have been removed, and all construction operations that might cause dust have been completed. No extra payment will be made for dust control measures, compensation shall be considered to be included in the prices stipulated for the appropriate items as listed in the Bid.

#### 1.24 DISPOSAL OF DEBRIS

A. The materials from the demolition, and those used in the construction of the Work throughout the project, shall be deposited in such a manner so as to not endanger persons or the Work, and so that free access may be had at any time to all hydrants, gates and existing equipment in the vicinity of the work. The materials shall be kept trimmed-up so as to be of as little inconvenience as possible to the public travel and plant operations. All excavated materials not approved for backfill and fill, all surplus material,

and all rock and boulders resulting from the excavations, shall be removed and satisfactorily disposed of off the site by the Contractor, at no additional expense to the Owner.

B. The materials being removed from the pipelines and manholes during the cleaning process shall be deposited in such a manner as to not endanger the public, plant personnel or persons performing the work. Such debris deposits may be of such nature, high in biological organic contents, or chemically aggressive that they will require proper disposal in a safe, health risk free, environment. Contact the Owner and Engineer and all agencies having jurisdiction thereof, for approval of debris disposal methods and locations of disposal, prior to disposing of any or all debris removed from pipe cleaning methods. All debris shall be removed and satisfactorily disposed of off the work site, at no additional expense to the Owner.

#### 1.25 NIGHT, SATURDAY, SUNDAY AND HOLIDAY WORK

A. No work shall be done at night or on Saturdays, or Sundays or holidays without the prior written approval of the Owner and Engineer.

#### 1.26 LENGTH OF WORK DAY

A. The Owner retains the right to restrict the Contractor to an eight-hour workday. Such restrictions shall not be the basis for damages or claims against the Owner.

B. The Contractor's attention is also directed to the fact that should it be deemed necessary to perform various items of work during off-peak flow or traffic hours, early morning or late night hours, then he shall

notify the Engineer a minimum of 24 hours in advance as to his intentions and reasons for the change in work hours. The Contractor shall be responsible for properly contacting and informing all involved parties of such a change in work hours. The Contractor shall not be entitled to any additional compensation from the Owner for any expenses that may be incurred by change of working hours and/or scheduling.

#### 1.27 HURRICANE PROTECTION

A. Should hurricane warnings be issued, the Contractor shall take every practicable precaution to minimize danger to persons, to the work and to adjacent property. These precautions shall include closing all openings; removing all loose materials, tools and/or equipment from exposed locations; and removing or securing scaffolding and other temporary work.

#### 1.28 REDUCTION IN SCOPE OF WORK

A. The Owner reserves the right to decrease the scope of the work to be done under this Contract and to omit any work should the Owner deem it to be in the public interest to do so. To this end, the Owner reserves the right to reduce the quantity of any items or omit all of any as set forth in the BID, either prior to executing the contract or at any time during the progress of the work. The Owner further reserves the right, at anytime during the progress of the work, to restore all or part of any items previously omitted or reduced. Exercise by the Owner of the above rights shall not constitute any ground or basis of claim for damages or for anticipated profits on the work omitted.

**END OF SECTION**

## SECTION 00800

### SUPPLEMENTARY CONDITIONS

- 1.01 General
- 1.02 Limits of Normal Excavation
- 1.03 Covering Excavated Trench
- 1.04 Maintaining Trench Excavations
- 1.05 Disruption of Storm Drains
- 1.06 Precaution Against Hydraulic Uplift During Construction
- 1.07 Blasting
- 1.08 Special Safety Precautions
- 1.09 Land, Easements and Rights-of-Way
- 1.10 Cleaning Finished Work

#### 1.01 GENERAL

A. These Supplementary Conditions are requirements which amend or supplement the General Conditions specified elsewhere.

B. The duties and obligations imposed by these Supplementary Conditions will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

C. Assertion of any claim for any additional compensation or damages on account of and/or the fulfillment of these Supplementary Conditions will not be allowed.

#### 1.02 LIMITS OF NORMAL EXCAVATION

A. In determining the quantities of excavation to which unit prices shall apply, the limits of normal width and depth of excavation shall be as described below, unless other limits are indicated in the Contract Documents.

B. For pipes in trench, the normal width of the trench shall be measured between vertical planes which are a distance apart equal to the sum of 18 inches plus 1-1/3 times the nominal inside diameter of the pipe. If the width so computed is less than 3.0 feet, a width of 3.0 feet shall be taken as the normal width for payment.

The normal depth shall be measured to a distance of 0.5 feet below the bottom of the pipe in earth and 0.5 feet in rock, unless there be a cradle underneath the pipe, in which case the normal depth shall be measured to the underside of the cradle. The trench width for the cradle shall be assumed to be that specified above for pipes in the trench.

C. For concrete placed directly against undisturbed earth, the normal width and depth of the excavation for such concrete shall be measured to the neat lines of the concrete as indicated on the Drawings or as ordered.

D. For concrete placed against rock surfaces resulting from rock excavation, the normal width and depth of the excavation shall be measured to 4 inches outside the neat lines of the concrete as indicated on the Drawings or as ordered.

E. For other structures, except manholes as noted below, the normal width shall be measured between vertical planes 1.0 feet outside the neat lines of the several parts of the structure, except that the width at any elevation shall be measured as not less than the width at a lower elevation. The normal depth shall be measured to the underside of that part of the structure for which the excavation is made.

F. No additional width or depth of trenches excavated in earth or rock shall be allowed at standard circular manholes. The pay limit for rock removed outside proposed manholes shall commence one foot (1.0) outside the widest dimension of the structure or shall be the maximum connecting trench width, whichever is greater.

G. Wherever bell holes are required for jointing pipe, they shall be provided without additional compensation over and above that resulting from

### 1.03 COVERING EXCAVATED TRENCH

A. In addition to the requirements in Section 00700 titled Interference with and Protection of Streets. Cover all open excavations when construction operations are suspended at the end of the day, or in excavated trenches where work is not actually in progress. Cover shall be capable of withstanding AASHTO H20-S16 loading. This cover shall consist of steel plates or some other satisfactory cover of adequate size and strength suitably held in place to keep all traffic out of excavations, all as verified in writing by the Contractor. The cover shall be laid over the excavation until it is backfilled.

### 1.04 MAINTAINING TRENCH EXCAVATIONS

B. The length of trench opened at any time, from point where ground is being broken to completed backfill, and also the amount of space in streets or public and private lands occupied by equipment, trench, and supplies, shall not exceed the length of space considered reasonably necessary and expedient by the Engineer. In determining the length of open trench or spaces for equipment, materials, supplies and other necessities, the Engineer will consider: the nature of the lands or streets where work is being done; types and methods of construction and equipment being used; inconvenience to the public or to private parties; possible dangers; and other proper matters. All work must be constructed with a minimum inconvenience and danger to the public and all other parties concerned.

B. Whenever any trench obstructs pedestrian and vehicular traffic in or to any public street, private driveway or property entrance, or on private property, take such means as may be necessary to maintain pedestrian and vehicular traffic and access. Until such time as the work may have attained sufficient strength to support backfill, or if for any other reason it is not expedient to backfill the trench immediately, construct and maintain suitable plank crossing and bridges to carry essential traffic in or to the

street, driveway or property in question, as specified or directed.

C. Suitable signs, lights, and such items required by Police Authorities to direct traffic, shall be furnished and maintained by the Contractor at his own expense.

D. Keep streets and premises free from unnecessary obstructions, debris and all other materials. The Engineer may, at any time, order all equipment, materials, surplus from excavations, debris and all other materials lying outside that length of working space, promptly removed. Should the Contractor fail to remove such material within 24 hours after notice to remove the same, the Owner may cause any part or all of such materials to be removed by such persons as he may employ, at the Contractor's expense; and may deduct the costs thereof from payments which may be or may become, due to the Contractor under the Contract. In special cases, where public safety urgently demands it, the Owner may cause such materials to be removed at the Contractor's expense without prior notice.

### 1.05 DISRUPTION OF STORM DRAINS

A. Portions of the Work may be located in areas that are serviced by storm drains. Take extreme precaution to minimize disruption of the drains, and repair and/or make restitution for repairs by others for all disruptions caused by the construction operations.

### 1.06 PRECAUTION AGAINST HYDRAULIC UPLIFT DURING CONSTRUCTION

A. Protect all structures against hydraulic uplift until such structures have beneficially completed.

### 1.07 BLASTING AND PRE-CONSTRUCTION BLASTING SURVEY

A. Blasting will not be permitted without prior approval.

B. In rock excavation it is especially required that the blasting shall be conducted with all possible care in order to avoid injury to persons and property. The rock shall be well-covered and a sufficient warning shall be given to all persons in the vicinity of the work before blasting occurs.

C. The explosives used shall be of such power and placed in such quantities and positions that will not make the excavation unduly large nor shatter unnecessarily upon or against where the work is to be installed nor injure the work already in place. Where masonry is to be built against the rock, all loose or shattered rock shall be completely removed so the masonry can be built firmly in contact with the solid rock.

D. Explosives must be carefully transported, stored, handled and used as required by the local and State laws, and the necessary permits for such transportation, storage, handling, and use shall be obtained by the Contractor who shall show such permits to the Owner and Engineer before any blasting is allowed. Keep on the job only such quantity of explosives as may be needed for the work underway and only during such time as they are being used. Explosives shall be stored in a secure manner and separately from all tools. Caps or detonators shall be stored separately and at a distance at least 100 feet from the explosives. Receptacles especially designed for use in the storage of explosives shall be used, and they shall be proofed against bullet, fire, or other conditions which might cause explosion of the contents. When the need for explosives is ended, all such material remaining on the job shall be promptly removed from the premises.

E. Under any circumstances, the approval of the Owner and Engineer shall be first obtained before blasting is permitted. Where, in the opinion of the Owner, and/or Engineer, blasting is unsafe or dangerous to persons or existing structures and utilities, employ pneumatic tools, drilling and splitting mechanically or by hand or other means not requiring the use of explosives for the removal

of rock, boulders or ledge; at no added expense to the Owner.

F. Before any explosives, such dynamite or detonator caps are stored or used at the site of work under this Contract, notify the Police and Fire Departments or other agencies having jurisdiction for instructions relative to the regulations for possession and use of explosives in the project area. Obtain and maintain all required permits or licenses for possession and use of explosives on the site of construction. In addition, the Contractor shall be responsible for:

- A person who shall be responsible for the explosive materials at all times.
- The keeping of records which shall show the date and time, the explosive materials and quantities used for construction, and the materials removed from the site after blasting is completed.
- The non-storage of explosive materials overnight on the site of construction under this Contract.
- The immediate reporting to the Police and Fire Departments or other agencies having jurisdiction of all unaccounted for explosive material.

G. All records relating to the possession and use of explosive materials under this contract shall be open to inspection by the Police Department, Fire Department, the Owner and Engineer, or other agencies having jurisdiction at any time.

H. The use of explosives on privately owned properties shall be subject to additional requirements of the above-mentioned property owner.

I. Cover all blasts with suitable blasting mats in such a manner as to prevent damage to landscape features, structures, facilities, or other surrounding objects, and in a manner that will prevent injury to persons.

J. The use of the maximum number of drill holes, together with the minimum number of

explosives in each drill hole and using split-second delayed caps, is the preferred method of accomplishing the blasting operations in conjunction with the rock excavation.

K. Keep all blasting logs of all his blasting operations. The blasting logs shall include all pertinent information with respect to personnel, times, locations, description of charges, methods, details of blasting patterns, excavations and such other information as may be required. Furnish to the Engineer each day that blasting operations are performed, certified copies of the Contractor's blasting logs covering all of his blasting operations.

Note to specifier:

The following 2 paragraphs relate to the Contractor conducting a pre-blast survey. If the Contractor is not required to conduct a pre-blast survey, delete.

L. Prior to and during construction, the Contractor shall employ, at his own expense, the services of an approved, fully competent and qualified vibration consultant(s) and any other experts or Insurance Representatives deemed necessary by the Engineer and the Contractor's Insurance, to conduct comprehensive and detailed pre-construction and blast monitoring surveys of all properties (private and public alike) which in the opinion of the Engineer and/or the applicable insurance companies may be affected, whether directly or indirectly by any construction activities required under this Contract, including but not limited to blasting. Such areas of concern shall include but not be limited to existing utilities, private wells for potable water, properties, buildings, structures (surface and/or subsurface) and all other applicable areas throughout the Contract area. The Contractor must submit to the Engineer, for approval, prior to employment thereof, the name, professional experience and any other qualifications deemed necessary, of the proposed vibration consultant(s) in triplicate to the Engineer for review and approval at least seven (7) calendar days prior to any construction and the resulting pre-construction report as specified above including but not limited to any

and all photographs, notes, appraisals, findings, precautions and recommendations.

M. All blasting programs required under this Contract shall be subject to review by the Engineer prior to the commencement of blasting or at any time thereafter and shall be designed and controlled, with a reasonable margin of safety such that any blast vibrations or resulting debris does not cause damage of any nature to the surrounding areas. All blasting operations shall be in conformity with the reviewed program. Blast monitoring surveys conducted during construction shall be subject to review by the Engineer within seven (7) days after completion thereof.

#### 1.08 LAND, EASEMENTS, AND RIGHTS-OF-WAY

A. As indicated, a portion of the work may be located within easements and/or rights-of-way, obtained or which will be obtained by the Owner, through private property. On all other lands, the Contractor has no rights unless he obtains them from the proper parties as specified in Section 00700, Occupying Private Land.

B. Prior to issuance of the Notice to Proceed, the Owner shall obtain all land, easements and rights-of-way necessary for carrying out and for the completion of the work to be performed pursuant to the Contract Documents, unless otherwise mutually agreed.

C. The Owner shall provide to the Contractor information which delineates and describes the lands owned and rights-of-way acquired.

D. The temporary stockpiling and staging area is not indicated on the contract drawings and is the responsibility of the Contractor. In the event additional area is required, the Contractor shall provide at his own expense and without liability to the Owner any additional land and access thereto that the Contractor may desire for temporary construction facilities or for storage of equipment and materials.



E. If however, lands, easements or rights-of-way cannot be obtained before work on the project begins, the Contractor shall begin his work upon such land, easements or rights-of-way as have been previously acquired by the Owner, and no claims for damages whatsoever will be allowed by reason of its inability to procure the lands, easements, or rights-of-way for the said work, the Contractor shall not be entitled to make or assert a claim for damages by reason of the said delay, or to withdraw from the Contract except by consent of the Owner. Time for completion of work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to set forth in writing.

#### 1.09 CLEANING FINISHED WORK

A. After the work is completed, the pipes, manholes and structures shall be carefully cleaned free of debris and dirt, broken masonry, and mortar, and left in first class condition, ready to use. All temporary or excess materials shall be disposed of off-site and the work left broom clean, to the satisfaction of the Engineer.

#### **END OF SECTION**

# DIVISION 1

## SECTION 1010

### SUMMARY OF WORK

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Work covered by the Contract, listing of Owner, Project location, Engineer. Sequence requirements, the Contractor's use of the premises and Owner's occupancy requirements.

##### 1.02 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work includes mill and overlay, small areas of full depth box widening less than 4 feet wide, cement concrete sidewalks and pedestrian curb ramps, hot mix asphalt driveways, loam and seed, plantings, minor drainage improvements, a new traffic signal, a reconstructed traffic signal, a new flashing warning beacon, a Rectangular Rapid Flashing Beacon (RRFB), removal of an existing traffic signal, removal of an existing flashing warning beacon, pavement markings, signs, safety controls and signing for construction operations and other incidental items included in the contract documents.
- B. All work is more particularly indicated, shown or described in the Drawings, Specifications, and other Contract Documents.

##### 1.03 OWNER

Department of Public Works  
101 Lamb Street  
Attleboro, MA 02703  
Contact: Michael Tyler, Superintendent  
Email: dpwsupervisor@cityofattleboro.us

##### 1.04 PROJECT LOCATION

Route 123 and Rathbun-Willard Drive  
Attleboro, MA 02703

##### 1.05 ENGINEER

- A. BETA Group, Inc.  
315 Norwood Park South  
Norwood, Massachusetts 02062  
Telephone: 781-255-1982  
Fax: 781-255-1974  
Contact: Kien Ho, P.E.  
Email: kho@BETA-Inc.com

#### 1.06 WORK SEQUENCE

- A. In order that Work may be conducted with minimum inconvenience to the public and, work under this Contract may be coordinated with other work which may be under construction or contemplated, and that work under the Contract may conform to conditions which it has been undertaken or conditions attached to a right-of-way or particular location for this work, the Engineer may determine the point or points and time or times when portions of work will commence or be carried on and may issue orders pertaining to the work sequence, relative to the rate of progress on several portions of the work.

#### 1.07 CONTRACTOR USE OF PREMISES

- A. The Contractor's use of premises shall be within the limits shown on the Drawings and as defined in Section 00500 – Contract Agreement, for the performance of the Work.
- B. The Contractor shall assume full responsibility for security of all materials and equipment on the site, including those of his subcontractor's.
- C. If directed by the Owner, the Contractor shall move any stored items that interfere with operations of the Owner.
- D. Obtain and pay for use of additional storage or work areas if needed to perform the Work.

#### 1.08 OWNER OCCUPANCY REQUIREMENTS

- A. The roadways within the project area must remain in full service at all times, throughout the duration of the project.

#### PART 2 PRODUCTS

NOT USED

#### PART 3 EXECUTION

NOT USED

**END OF SECTION**

## **SECTION 01025**

### **MEASUREMENT AND PAYMENT**

#### **PART 1 GENERAL**

##### **1.01 SCOPE**

- A. The purpose of this section is to define the basis of measurement and payment for the unit price or lump sum items listed in SECTION 00300, BID PROPOSAL.
- B. Section 9.00 of the Commonwealth of Massachusetts Highway Department (MassDOT) Standard Specifications for Highways and Bridges 2021.

##### **1.02 PAYMENT ITEMS**

- A. Work Items of this Project are referenced with Items Numbers and Item Descriptions similar to those currently in use by the MassDOT, Highway Division.

##### **1.03 BASIS OF MEASUREMENT AND PAYMENT**

- A. Method of Measurement and Basis of Payment for Work Items shall be as called for under the appropriate section of the MassDOT Standard Specifications, unless modified in Sections 02500, Special Provisions and 02500, Construction Specifications.

**END OF SECTION**

## **SECTION 01035**

### **MODIFICATION PROCEDURES**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Section Includes
  - 1. Procedures for making modifications to the Contract by change orders or other means.
- B. Related Sections
  - 1. Document 00500 - Agreement

##### **1.02 CHANGE ORDERS**

- A. In general Change Orders will be issued for modification of Contract documents which will incorporate changes in the Contract requirements, including additions or deletions in the Work; for unforeseen field conditions which will necessitate changes in the Work; changes in code provisions or other requirements of federal, state or local authority requiring changes in the Work; changes in the availability of products or for incorporating new products into the work and for changes directed by the Engineer for the benefit of the Owner.
- B. Authority to execute Change Orders shall be that of the Engineer and not of the Contractor. Changes Orders will, in general, originate by a "Change Order Proposal Request" or by issuance of a "Construction Change Authorization".
- C. Unless authorized by the Engineer, no work shall be performed that is involved in the change until a formal Change Order is issued.
- D. To initiate a Change Order, the Engineer will forward a Change Order proposal request describing the proposed changes and if required, include additional or revised drawings and specifications soliciting a formal quotation of cost and time to complete the proposed Change Order work. Upon reaching mutual agreement on the cost and time, the Engineer will sign his approval of the Change Order and submit it to the Contractor for his full signature of acceptance.

##### **1.03 FIELD ORDERS**

- A. The Engineer may, to avoid costly removal of, or alterations to, present on-going work, issue a Work Directive Change authorizing the Contractor to proceed, subject to later negotiation of the price of the change.

##### **1.04 PRICE AGREEMENTS**

- A. Prices agreed upon to cover the Change Orders may be either by mutual acceptance of a lump sum or by unit prices as stated in the Contract bid proposal or actual direct cost plus a percentage for overhead, profit and other expenses consistent with Section 00500 – Contract Agreement.

- B. Work done by a subcontractor entitles the General Contractor a percentage of the sum of the actual direct cost, not including the subcontractor's overhead and profit, consistent with Section 00500 – Contract Agreement.
- C. Method for computing the cost of the change shall be based on the net additional increase. No overhead and profit shall be deducted from prices for changes deleting work.
- D. The Change Order form document shall indicate the net adjustment (+/-) to the total Contract price as a result thereof including extension or reduction of time when applicable.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

**END OF SECTION**

## **SECTION 01050**

### **FIELD ENGINEERING**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Survey work and other field engineering responsibilities of the Contractor.

##### **1.02 REQUIREMENTS**

- A. Contractor shall be responsible for layout of the work and the establishing of lines and grades and the following.
- B. Establish elevations, lines, levels, reference marks, batter boards, etc., required during the progress of the Work. Verify such marks by instrument to confirm accuracy.
- C. Locate and protect survey control and reference points.
- D. Make, check, and be responsible for all measurements and dimensions necessary for the proper construction of the Work.
- E. Engineer will be permitted to check the lines, elevations, reference marks, batter boards, etc., set by the Contractor. The Contractor shall correct any errors found in lines, elevations, reference marks, batter boards, etc. Such a check shall not be construed as approval of the Contractor's work and shall not relieve or diminish the responsibility of the Contractor for the accurate construction and completion of the Work.
- F. Control datum for survey as shown on Drawings.

##### **1.03 QUALITY ASSURANCE**

- A. Qualifications: Employ a Civil Engineer or Land Surveyor registered within the Commonwealth of Massachusetts, acceptable to the Engineer.
- B. Certifications: Submit certificate signed by the Contractor's Engineer or Land Surveyor stating elevations and locations of the Work are in conformance with the Contract Documents.

#### **PART 2 PRODUCTS**

NOT USED

#### **PART 3 EXECUTION**

NOT USED

**END OF SECTION**

## **SECTION 01065**

### **PRICE ADJUSTMENTS FOR COST INCREASES AND DECREASES FOR FUELS, (BOTH DIESEL AND GAS), ASPHALT, AND CEMENT**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. General Provisions
- B. MGL Chapter 30 Section 38A
- C. Fuel Price Adjustment, (Both Diesel and Gas)
- D. Asphalt Price Adjustment
- E. Cement Price Adjustment
- F. Structural and Reinforcing Steel Price Adjustment

##### **1.02 GENERAL PROVISIONS**

- A. The herein specified material price adjustments are required in contracts for road, bridge water and sewer projects awarded under Chapter 30, Section 39M of the Massachusetts General Laws.
- B. Material price adjustments are not required for contracts awarded under Chapter 149, Section 44A of the Massachusetts General Laws.

##### **1.03 MASSACHUSETTS GENERAL LAW CHAPTER 30 SECTION 38A**

- A. Section 38A. "Contracts for road and bridge projects awarded as a result of a proposal or invitation for bids under section 39M shall include a price adjustment clause for each of the following materials: fuel, both diesel and gasoline; asphalt; concrete; and steel. Contracts for water and sewer projects awarded as a result of a proposal or invitation for bids under said section 39M shall include a price adjustment clause for fuel, both diesel and gasoline; liquid asphalt; and portland cement contained in cast-in-place concrete. A base price for each material shall be set by the awarding authority or agency and shall be included in the bid documents at the time the project is advertised. The awarding authority or agency shall also identify in the bid documents the price index to be used for each material. The price adjustment clause shall provide for a contract adjustment to be made on a monthly basis when the monthly cost change exceeds plus or minus 5 per cent."

##### **1.04 FUEL PRICE ADJUSTMENT (BOTH DIESEL AND GAS)**

- A. This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Owner, depending on an increase or decrease in the average price of diesel fuel or gasoline.
- B. The fuel adjustment for prices increasing or decreasing 5% or more will be based on the actual number of gallons of diesel and/or gasoline fuel utilized for an individual monthly period as verified through the requirements stated herein, and further multiplied by the variance in price from the Base Price to the Period Price.



- C. The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the Massachusetts DOT Highway Division's web site:  
<http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments.aspx> for the month in which the contract was bid, which included State Tax.
- D. The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.
- E. This adjustment will be effected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.
- F. No adjustment will be paid for work done beyond the extended completion date of any contract.
- G. Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.
- H. The Contractor shall supply to the Owner a list of equipment, on a monthly basis, being utilized on the project that requires diesel and gasoline fuel. The Owner must approve the list prior to any fuel slips being submitted. The Contractor shall supply diesel and gas fuel slips to the Owner, on a monthly basis, for only the equipment specified on the list and approved to have been utilized on the project for that month. The slips must indicate the source (company supplying the fuel), date, project name, whether the fuel is diesel or gasoline, the equipment fueled and the volume of the fuel for that equipment.

Only slips with the aforementioned information will be considered in determining fuel adjustment prices.

- I. The Diesel Fuel Base Price for this Contract will be \$2.712.
- J. The Gasoline Fuel Base Price for this Contract will be \$2.632.

#### 1.05 ASPHALT PRICE ADJUSTMENT

- A. This provision applies to all projects using greater than 100 tons of hot mix asphalt (HMA) mixtures containing liquid asphalt cement as stipulated in this section.
- B. The Price Adjustment will be based on the variance in price for the liquid asphalt component only from the Base Price to the Period Price. It shall not include transportation or other charges. This Price Adjustment will occur on a monthly basis.
- C. Base Price
  - 1. The Base Price of liquid asphalt on a project as listed herein, is a fixed price determined at the time of bid by the Department (MassHighway), by using the same method as for the determination of the Period Price detailed below.
- D. Period Price

1. Please note that, starting July 19, 2013, only one asphalt period price (formerly called the "New Asphalt Period Price") will be posted each month on the MassHighway website: <http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments.aspx>

E. New Asphalt Period Price Method (Currently called "Period Price")

1. The "New Asphalt Period Price Method" is for contracts bid after December 15, 2008 and will show the Period Price of liquid asphalt for each monthly period as determined by MassHighway using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. MassHighway will post this Period Price on this website within two (2) business days following their receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted MassHighway the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

F. Old Asphalt Period Price Method (Obsolete)

1. The "Old Asphalt Period Price Method" Period Price will be for contracts bid on or before December 15, 2008 and will contain liquid asphalt prices as determined by the old or previous method. These prices will continue to be posted on MassHighway's website until all contracts using the "Old Asphalt Period Price Method" Period Price have been closed.

G. New and Old Asphalt Period Price Methods

1. The paragraphs below apply to both the New and the Old Asphalt Period Price Methods.
2. The Contract Price of the hot mix asphalt mixture will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.
3. The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M3.11.03.
4. The Price Adjustment will be determined by multiplying the number of tons of hot mix asphalt mixtures placed during each monthly period times the liquid asphalt content percentage times the variance in price between Base Price and Period Price of liquid asphalt.
5. This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.
6. No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is an approved extension of time.

H. The Liquid Asphalt Base Price for this Contract will be \$625.00.

## 1.06 CEMENT PRICE ADJUSTMENT

- A. This provision applies to all projects using greater than 100 Cubic Yards (76 Cubic Meters) of Portland cement concrete containing Portland cement as stipulated in this section. This Price Adjustment will occur on a monthly basis.
- B. The Price Adjustment will be based on the variance in price for the Portland cement component only from the Base Price to the Period Price. It shall not include transportation or other charges.
- C. The Base Price of Portland cement on a project is a fixed price determined at the time of bid by the Department by using the same method as for the determination of the Period Price (see below) and found herein.
- D. The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (U.S.), for Portland cement (Type I) quoted for Boston, U.S.A. in the Construction Economics section of *ENR Engineering News-Record* magazine or at the ENR website <http://www.enr.com/> under Construction Economics. The Period Price will be posted on the MassHighway website:  
<http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/Construction/PriceAdjustments.aspx>  
the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.
- E. The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.
- F. The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Contract Plans and Specifications. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.
- G. The Price Adjustment will be determined by multiplying the number of cubic yards of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland cement.
- H. This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.
- I. No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is an approved extension of time.
- J. The Cement Base Price for this Contract will be \$162.28.

### END OF SECTION

## **SECTION 01067**

### **STATE OF MASSACHUSETTS AND LOCAL REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. EXCERPTS FROM MASSACHUSETTS STATUTES**
- B. MINIMUM WAGE RATES**
- C. SAFETY AND HEALTH**

##### **1.02 EXCERPTS FROM MASSACHUSETTS STATUTES**

- A. In addition to the requirements as set forth under "Compliance with Laws" in the AGREEMENT, particular attention is directed to certain stipulations of Chapter 149 of the General Laws of Massachusetts, as amended to date as follows:**

Section 25. "Every employee in public work shall lodge, board, and trade where and with whom he elects; and no person or his agents or employees under contract with the commonwealth, a county, city or town, or with a department, board, commission or officer acting therefore, for the doing of public work shall directly or indirectly require, as a condition of employment therein, that the employee shall lodge, board or trade at a particular place or with a particular person. This section shall be made a part of the contract for such employment."

Section 26. "In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works by the commonwealth, or by a county, town or district, or by persons given to citizens of the commonwealth who have been residents of the commonwealth for at least six months at the commencement of their employment who are male veterans as defined in clause forty-three of section seven of chapter four and who are qualified to perform the work to which the employment relates;

and secondly, to citizens of the commonwealth generally who have been residents of the commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers then to citizens of the United States, and every contract for such work shall contain a provision to this effect."

Section 34. "Every contract, except for the purchase of, material or supplies, involving the employment of laborers, workmen, mechanics, foremen, or inspectors, to which the commonwealth or any county or any town, subject to section thirty, is a party, shall contain a stipulation that no laborer, workman, mechanic, foreman or inspector working within the commonwealth, in the employ of the contractor, subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be required or permitted to work more than eight hours in any one day or more than 48 hours in any one week, or more than six days in any one week, except in cases of emergency, or in

case any town subject to section thirty-one is a party to such a contract, more than eight hours in any one day, except as aforesaid..."

Section 34A. "Every contract for the construction, alteration, maintenance, repair or demolition of or addition to, any public building or other public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall, before commencing performance of such contract, provide by insurance for the payment of compensation and the furnishing of other benefits under chapter one hundred and fifty-two to all persons to be employed under the contract, and that the contractor shall continue such insurance in full force and effect during the term of the contract. No officer or agent contracting in behalf of the commonwealth or any political subdivision thereof shall award such a contract until he has been furnished with sufficient proof of compliance with the aforesaid stipulations. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the officer or agent who awarded the contract at least fifteen days prior to the intended effective date thereof, which date shall be expressed in said notice. Notice of cancellation sent by the party proposing receipt of the addressee requested, shall be a sufficient notice..."

Section 34B. "Every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the commonwealth or any political subdivision thereof shall contain stipulations requiring that the contractor shall pay to any reserve police officer employed by him in any city or town the prevailing rate of wage paid to regular police officers employed by him in such city or town."

Attention is directed to Chapter 774 of the Acts of 1972 amending Section 39F of Chapter 30 to read as follows:

Section 39F. "(1) Every contract awarded shall contain the following subparagraphs and in each case those subparagraphs shall be binding between the general contractor and each subcontractor.

"(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that

subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontractor work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided, that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment for a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor."

Section 39L. The commonwealth and every county, city, town, district, board, commission or other public body which, as the awarding authority, requests proposals, bids or sub-bids for any work in the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or other public works (1) shall not enter into a contract for the work with, and shall not approve as a subcontractor furnishing labor and materials for a part of the work, a foreign corporation which has not filed with the awarding authority a certificate of the state secretary stating that the corporation has complied with requirements of section 15.03 of subdivision A of Part 15 of chapter 156D and the date of compliance, and further has filed all annual reports required by section 16.22 of subdivision B of Part 16 of said chapter 156D, and (2) shall report to the state secretary and to the department of corporations and taxation any foreign corporation performing work under such contract or subcontract, and any person, other than a corporation, performing work under such contract or subcontract, and residing or having a principal place of business outside the commonwealth.

Attention is also directed to Chapter 774 of the Acts of 1972 further amending Chapter 30 by adding after Section 39M the following section:

Section 39M. (b) Specifications for such contracts, and specification for contracts awarded pursuant to the provisions of said sections forty-four A to forty-four L of said chapter one hundred and forty-nine, shall be written to provide for full competition for each item of material to be furnished under the contract; except, however, that said specifications may be otherwise written for sound reasons in the public interest stated in writing in the public records of the awarding authority or promptly given in writing by the awarding authority to anyone making a written request therefore, in either instance such writing to be prepared after reasonable investigation. Every such contract shall provide that an item equal to that named or described in the said specifications may be furnished; and an item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design, (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased, and (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications. For each item of material the specifications shall provide for either a minimum of three named brands of material or a description of material which can be met by a minimum of three manufacturers or producers, and for the equal of any one of said named or described materials.

Section 39N. "Every contract subject to section forty-four A of chapter one hundred forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an awarding authority may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:

If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."

Attention is also directed to Chapter 1164 of the Acts of 1973 further amending Chapter 30 by adding after Section 39N the following two sections:

Section 39O. "Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety...

"(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided however, that if there is a suspension, delay or interruption for fifteen days or more due to a failure of the awarding authority shall make an adjustment in the contract but shall not include any profit to the general contractor on such increase; and provide further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than 20 days before the general contractor notified the awarding authority of the act or failure to act involved in the claim."

Section 39P. "Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the



decision be made promptly and, in any event no later than thirty days after the written submission for decision; but if such decision required extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the data by which the decision will be made."

Attention is also directed to Chapter 30, Section 39R of the General Laws of Massachusetts as amended to date as follows:

Section 39R. (a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to section thirty-nine M of chapter thirty, sections forty-four A through forty-four H, inclusive, of chapter one hundred forty-nine and sections thirty B through thirty P, inclusive, of chapter seven.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty B through thirty P, inclusive, of chapter seven and any contract awarded or executed pursuant to section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(3) "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memorandum invoices, computer printouts, tapes, discs, papers and other documents transcribed information of any type, whether expressed in ordinary or machine language.

(4) "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

(5) "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a delineation to express an opinion for stated reasons.

(6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which she/he has made and sets forth his/her opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of a financial condition of the contractor.

(7) "Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

(b) Subsection (a) (2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections 30B through 30P, inclusive, of chapter seven, and pursuant to section 39M of chapter 30 or to section 44A through 44H, inclusive, of chapter 149, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) until the expiration of six years after final payment, the awarding authority, office of inspector general, and the deputy commissioner of capital planning and operations shall have the right to examine any books, documents, papers or records of the contractor or of his/her subcontractors that directly pertain to, and involve transactions relating to, the contractor or his/her subcontractors, and

(3) if the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his/her description the date of the change and reasons therefore, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and

(4) if the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

(5) if the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:

(1) transactions are executed in accordance with management's general and specific authorization;

(2) transactions are recorded as necessary

i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. To maintain accountability for assets;

(3) access to assets in permitted only in accordance with management's general or specific authorization; and

(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that she/he has examined the statement of management on internal accounting controls, and expressing an opinion as to

(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the awarding authority during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by sub accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the awarding authority upon request.

(e) The office of inspector general, the deputy commissioner for capital planning and operations and any other awarding authority shall enforce the provisions of this section. The deputy commissioner of capital planning and operations may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of Chapter one hundred forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

### 1.03 MINIMUM WAGE RATES

A. Minimum Wage Rates as determined by the Commissioner of Department of Labor and Industries under the provision of the Massachusetts General Laws, Chapter 149, Sections 26 to 27D, as amended, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information of Minimum Wage Rates for those trades-people who may be employed for the proposed work under this contract. Minimum wage rates are included at the end of this section.

#### 1.04 SAFETY AND HEALTH

- A. This project is subject to the Safety and Health regulation of the U.S. Department of Labor set forth in 29 CFR Part 1926, Commonwealth of Massachusetts Regulations CMR 454, and to the Massachusetts (Department of Labor and Industries,) Division of (Industrial) Occupational Safety "Construction Industry Rules and Regulations for the Prevention of Accidents in Construction operations (Chapter 454 CMR 10.00 et. seq.)". Contractors shall be familiar with the requirements of these regulations.

**END OF SECTION**

## **SECTION 01170**

### **ENVIRONMENTAL PROTECTION**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

###### **A. Section Includes**

1. Requirements for environmental protection during and as the result of construction operations under this Contract except for those measures set forth in other provisions of these Specifications.

##### **1.02 QUALITY ASSURANCE**

###### **A. Requirements of regulatory agencies:**

1. In order to prevent environmental pollution and to provide for environmental protection arising from construction activities related to the performance of this Contract, the Contractor shall comply with all applicable Federal, State, and local laws and regulations concerning environmental protection, as well as the specific requirements stated in the Section and elsewhere in the Specifications.

#### **PART 3 EXECUTION**

##### **3.01 PROTECTION OF LAND RESOURCES**

- A. It is intended that the land resources within the project boundaries and outside the limits of permanent work performed under this Contract be preserved in their present condition, or be restored to a condition after completion of construction, that will appear to be natural and not detract from the appearance of the project. The Contractor shall confine his construction activities to areas defined on the Drawings or in the Specifications except with written approval of the property owners and the Engineer.
- B. Limits of working areas include areas for storage of construction material, and shall be cleared in a manner which will enable satisfactory restoration and which will not affect the environment during or after the construction period. The Contractor shall not enter beyond the working limits of the working area except with written approval of the Engineer and Owner.
- C. Location of areas for storage of the Contractor's materials required temporarily in the performance of the work, shall be within the limits of the working area and shall require written approval of the Engineer prior to use. The preservation of the landscape shall be an imperative consideration.

##### **3.02 PROTECTION OF WATER RESOURCES**

- A. Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumen's, calcium chloride, acids or harmful materials. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State, County, and Municipal laws concerning pollution of rivers, streams and impounded water. All work under this Contract shall be

- performed in such a manner that objectionable conditions will not be created in streams through, or bodies of water adjacent to, the project area.
- B. Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall, if turbidity producing materials are present, be held in suitable sedimentation basins or shall be graded to control erosion within acceptable limits. Temporary erosion and sediment control measures such as berms, dikes, drains, or sedimentation basins, if required to meet the above standards, shall be provided and maintained until permanent drainage and erosion control facilities are completed and operative. The area of bare soil exposed at any one time by construction operations should be held to a minimum.
  - C. Apply temporary mulch on denuded ground immediately after rough grading is completed. This shall apply to all areas not subject to appreciable traffic during construction, even those that are to receive some form of construction later if ground is to be exposed 30 days or more.
  - D. Stream and drainage ditch crossings by fording with equipment shall be limited to control turbidity, and in areas of frequent crossings, temporary culverts or bridge structures shall be installed. Any temporary culverts or bridge structures shall be removed upon completion of the project. Fills and waste areas shall be constructed by selective placement to eliminate silts or clays on the surface that will erode and contaminate adjacent streams.
  - E. Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides, and cement and surface drainage from entering public waters.
  - F. Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., in areas adjacent to streams or other waterways shall be disposed of by the Contractor in accordance with the applicable governing regulations. If any waste material is dumped in unauthorized area, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as specified hereinbefore, and replaced with suitable fill material, compacted and finished with topsoil, all at the expense of the Contractor.

### 3.03 MAINTENANCE

- A. The Contractor shall dispose of all discarded debris and aggregate samples in a manner approved by the Engineer. Toilet facilities shall be kept clean and sanitary at all times. Services shall be performed at such a time and in such a manner to least interfere with the operations. Services shall be accomplished to the satisfaction of the Engineer.
- B. The Contractor shall frequently remove materials no longer required on the site so that, at all times, the site, access routes to the site and any other areas disturbed by his operations shall present a neat, orderly, workmanlike appearance.

### 3.04 DUST CONTROL

- A. Contractor shall maintain all excavations, embankments, stockpiles, and all other work areas within or without the project boundaries free from dust which would cause a hazard or nuisance to others or contaminate surface water.

### 3.05 NOISE CONTROL

- A. Contractor shall use every effort and means possible to minimize or eliminate noise caused by his operation which the Engineer may consider objectionable.

### 3.06 LITTER CONTROL

- A. Any litter generated by the Contractor's operation, whether from disturbance of existing buried solid waste or generated in the course of performing the work under Contract, shall be collected and properly disposed of on a daily basis.

### 3.07 PROHIBITED CONSTRUCTION PROCEDURES

- A. Contractor is advised that the disposal of excess excavated material in wetlands, stream corridors, and floodplains is strictly prohibited. Any violation of this restriction by the Contractor or any person employed by him, will be brought to the immediate attention of the responsible regulatory agencies.
- B. Contractor shall comply with the following requirements regarding prohibited construction procedures as follows:
  - 1. Dumping of spoil material into any stream corridor, any wetland, any surface waters, or at unspecified locations.
  - 2. Indiscriminate, arbitrary or capricious operation of equipment in any stream corridors, any wetlands or surface waters.
  - 3. Pumping of silt-laden water from trenches or other excavations into any surface waters, any stream corridors or any wetlands.
  - 4. Damaging vegetation adjacent to, or outside of, the area of the work.
  - 5. Disposal of trees, brush and other debris in any stream corridors, any wetlands, any surface waters, or at unspecified locations.
  - 6. Permanent or unspecified alteration of the flow line of any stream.
  - 7. Open burning of project debris.
  - 8. Location of storage stockpile areas in environmentally sensitive areas.
  - 9. Disposal of excess or unsuitable excavation material in wetlands or floodplains, even with permission of the property owner.

**END OF SECTION**

## **SECTION 01200**

### **PROJECT MEETINGS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Administrative and procedural requirements for project meetings.

##### **1.02 PRECONSTRUCTION CONFERENCE**

- A. Engineer will schedule and administer a pre-construction conference.
- B. Pre-construction conference will be scheduled and administered within fourteen (14) calendar days after the dated "Notice to Proceed". The Contractor shall be prepared to address such topics as projected construction schedules, major personnel, critical work areas, construction facilities and shop drawing submittals.

##### **1.03 Progress meetings**

- A. Engineer will schedule and administer progress meetings and specially called meetings throughout the duration of the Work at minimum monthly intervals.
- B. Time and location of such meetings shall be designated by the Engineer and shall be convenient for all parties involved.
- C. Engineer will, prepare agenda with copies for participants, preside at meetings, record minutes, and distribute copies to participants.

#### **PART 2 PRODUCTS**

NOT USED

#### **PART 3 EXECUTION**

NOT USED

**END OF SECTION**



## SECTION 01300

### SUBMITTALS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Requirements for submission of schedules and shop drawings.

##### 1.02 PROGRESS SCHEDULE

- A. Within fourteen (14) calendar days after execution of the Contract Documents, the Contractor shall submit to the Engineer for review a construction progress schedule conforming to requirements specified. This schedule should show the proposed dates of commencement and completion of each of the various subdivisions of work required under this Contract and the anticipated monthly percentage of completion based on the total contract price. The Contractor shall be responsible for updating and/or revising this schedule whenever directed by the Engineer throughout the duration of the Contract.
- B. Special attention is directed to the requirement that the Contractor shall start the Work, as specified under this Contract, no later than thirty (30) calendar days after the execution of the Contract Documents, unless otherwise directed by the Owner. The Contractor shall comply with all pre-construction requirements as specified. The Owner reserves the right to delay the commencement of the Work or any part thereof if the specified requirements as determined by the Engineer have not been satisfied. The Owner further reserves the right to limit or, delay construction, or certain activities thereof, in certain areas of the Contract should the Owner deem it to be in the public's best interest and/or safety to do so.
- C. Contractor shall contact the appropriate town or city authorities concerning any public or semi-public events that may occur during the construction period that may affect construction. The Contractor alone shall be responsible for arranging his construction sequence to conform to any restrictions these events may impose. No claims for extras will be allowed because of any delay, extra materials handling, extra excavation, etc. caused by the imposed restrictions. However, additional time may be granted for completion of the work to compensate for delays caused by said restrictions.

##### 1.03 SHOP DRAWINGS

- A. Submit **six (6)** copies of all shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated especially for the Contract, and materials and equipment for which such drawings are specifically requested.
- B. A maximum of two (2) submittals of each shop drawing will be reviewed by the Engineer. If more submittals are required due to the Contractor's neglect or failure to fulfill the requirements of the Contract plans and specifications, or to make corrections or modifications required by the Engineer in the review of the first two submittals, the Engineer will review the submittal and the Contractor will be responsible for the cost of the review, as determined by the Owner based on the Engineer's documentation of time and rates for additional services established in the Engineering Agreement between the Owner and the Engineer.

- C. If resubmittals on shop and working drawings are required, the Engineer will retain three (3) copies and **three (3)** copies will be returned to the Contractor. When resubmittals are returned to the Engineer, six copies of the complete submittal shall again be required.
- D. Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing. When the dimensions are of particular importance, or when specified, the drawings shall be certified by the manufacturer or fabricator as correct for the Contract. **The Contractor shall also be required to certify on the submitted drawings or catalog cuts that the equipment or materials are accepted by him and in conformance with the plans and Specifications.**
- E. When so specified or if considered by the Engineer to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted in place of shop and working drawings.
- F. Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings to eliminate delay to the Work due to the absence of such drawings. All shop and working drawings must be submitted to the Engineer within thirty (30) calendar days prior to incorporation into the Work, unless otherwise permitted by the Engineer. **Prior to the submittal of any shop drawings, the Contractor shall submit a schedule of proposed shop drawing transmittals.** The schedule shall identify the subject matter of each transmittal, the corresponding specification section number and the proposed date of submission. Prior to and during the progress of the Work the schedule shall be revised and resubmitted as requested by the Engineer.
- G. No material or equipment shall be purchased or fabricated for the Contract until the required shop and working drawings have been submitted as hereinabove provided and reviewed for conformance to the Contract requirements. All such materials and equipment and the work involved in their installation or incorporation into the Work shall then be as shown in and represented by said drawings.
- H. Until the necessary review has been made, the Contractor shall not proceed with any portion of the Work (such as the construction of foundations) for which review is required.
- I. All shop and working drawings shall be submitted to the Engineer by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning reviewed drawings to them. All shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop and working drawings. All drawings shall be clearly marked with the names of the Owner, Contractor, and building, equipment, or structure to which the drawing applies, and shall be suitable numbered. Submitted shop drawings shall be accompanied by a letter of transmittal, completed by the Contractor provided by the Engineer.
- J. Only drawings which have been checked and corrected by the fabricator should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Engineer, the Contractor shall check thoroughly all such drawings to satisfy himself that the subject matter thereof conforms to the Drawings and Specifications in all respects. All drawings which are correct shall be marked with the date, checker's name, and indication of

the Contractor's approval, and then shall be submitted to the Engineer; other drawings shall be returned for correction.

- K. If a shop drawing shows any deviation from the Contract requirements, the Contractor shall make specific mention of the deviations in his letter of transmittal.
- L. The review of shop and working drawings by the Engineer will be general only, and nothing contained in this Section shall relieve, diminish or alter in any respect the responsibilities of the Contractor under the Contract Documents and in particular, the specific responsibility of the Contractor for details of design and dimensions necessary for proper fitting and construction of the work as required by the Contract and for achieving the result and performance as specified. The Contractor shall be responsible for errors and omissions in shop drawings.
- M. Should the Contractor submit equipment that requires modifications to the structures, piping, electrical conduit, wires, appurtenances, or layouts etc., either existing or as detailed on the Drawings, he shall also submit details of the proposed modifications. If such equipment and modifications are accepted, the Contractor, at no additional cost to the Owner, shall do the work necessary to make such modifications.
- N. The Contractor shall furnish additional copies of shop drawings or catalog cuts when so requested.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

**END OF SECTION**

## **SECTION 01400**

### **QUALITY CONTROL**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Requirements for Contractor's quality control of products, suppliers, manufacturers, services, site conditions, and workmanship, to produce Work of specified quality.

##### **1.02 QUALITY ASSURANCE/CONTROL OF INSTALLATION**

- A. Comply fully with manufacturers' instructions, including each step in sequence.
- B. Should manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

##### **1.03 FIELD SAMPLES**

- A. Install field samples at the site as required by individual specifications sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified to be removed, clear area only after field sample has been accepted by the Engineer.

##### **1.04 CERTIFIED WELDERS**

- A. Structural welds shall be made only by operators who have been qualified by tests, as prescribed in the "Standard Qualification Procedure" of the American Welders Society, to perform the type of work required.
- B. Pipe welds shall be made only by operators who have been qualified by the National Certified Pipe Welding Bureau and each operator's qualification record shall be submitted to the Engineer before any work is performed.
- C. Shop welding shall be in accordance with the "Code for Welding in Building Construction".

#### **PART 2 PRODUCTS**

**NOT USED**

#### **PART 3 EXECUTION**

**NOT USED**

**END OF SECTION**

## **SECTION 01410**

### **LABORATORY TESTING**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

###### **A. Section Includes**

1. Qualification, duties and responsibilities of testing laboratories.
2. Coordination and scheduling responsibilities of the Contractor.

###### **B. Related Sections**

1. Section 01600 - Materials and Equipment

##### **1.02 PAYMENT PROCEDURES**

###### **A. Initial Testing**

1. Unless otherwise specified herein, the Owner will pay for initial testing services required by the Engineer.

###### **B. Retesting**

1. When initial tests indicate noncompliance with the Contract Documents, subsequent retesting occasioned by the noncompliance shall be performed by the same testing agency, and costs thereof will be deducted by the Owner from the Contract Sum.

###### **C. Contractors Convenience Testing**

1. Inspecting and testing performed exclusively for the Contractor's convenience or a required by him by the technical specifications shall be the sole responsibility of the Contractor.

##### **1.03 REFERENCES**

###### **A. American Society for Testing and Materials (ASTM)**

1. E329, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

##### **1.04 REQUIREMENTS**

###### **A. Work included:**

1. Cooperate with the Owner's selected testing agency and all others responsible for testing and inspecting the Work.
2. Provide other testing and inspecting as specified to be furnished by the Contractor in this Section and/or elsewhere in the Contract Documents.
3. Where no testing requirements are described, but the Owner directs testing, the Contractor shall provide testing under the requirements of this Specification.

###### **B. Work not included:**

1. Selection of testing laboratory: The Owner will select a qualified independent testing laboratory.

#### 1.05 QUALITY ASSURANCE

##### A. Qualifications

1. The testing laboratory will be qualified to the Owner's approval in accordance with ASTM E329.

##### B. Regulatory requirements

1. Testing, when required, will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.
2. Regulatory Requirements Inspections and tests required by codes or ordinances, or by a plan approved authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

##### A. Comply with pertinent provisions of Section 01600 - Materials and Equipment.

- ##### B. Promptly process and distribute, to the Engineer, required copies of test reports and instructions to assure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

#### 1.07 SCHEDULING

##### A. Establishing schedule

1. By advance discussion with the testing laboratory selected by the Owner, determine the time required for the laboratory to perform its tests and to issue each of its findings.
2. Provide all required time within the construction schedule.
3. Coordinate testing activity with the appropriate testing laboratory.

##### B. Revising schedule

1. When changes of construction schedule are necessary during construction, coordinate all such changes with the testing laboratory as required.

##### C. Adherence to schedule

1. When the testing laboratory is ready to test according to the established schedule, but is prevented from testing or taking specimens due to incompleteness of the Work, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

### PART 2 PRODUCTS

NOT USED

### PART 3 EXECUTION

#### 3.01 FIELD QUALITY CONTROL

##### A. Site Tests

1. Representatives of the testing laboratory shall have access to the Work at all times and at all locations where the Work is in progress. Provide facilities for such access to enable the laboratory to perform its functions properly.
2. All specimens and samples for testing, unless otherwise provided in the Contract Documents, shall be taken by the testing personnel. All sampling equipment and personnel will be provided by the testing laboratory. All deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

**END OF SECTION**

## **SECTION 01510**

### **TEMPORARY UTILITIES**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Requirements for temporary utilities required during construction.

##### **1.02 GENERAL REQUIREMENTS**

- A. Contractor is responsible for payment of all costs associated with the installation and operation of all temporary utilities necessary for the completion of the work.

##### **1.03 TEMPORARY WATER**

- A. If needed, temporary pipe lines and connections from the permanent service lines, necessary for the use of the Contractor and his Subcontractors shall be installed, protected, and maintained at the expense of the Contractor.
- B. Contractor shall provide adequate supply of drinking water from an approved source of acceptable quality, satisfactorily cooled, for his employees and those of his Subcontractors.

##### **1.04 TEMPORARY ELECTRICITY**

- A. If needed, provide electrical energy required for temporary lighting and power.
- B. Contractor shall bare all costs necessary to provide a temporary, separately metered electric service for construction. Electrical work to be done in accordance with applicable codes.

##### **1.05 TEMPORARY SANITARY FACILITIES**

- A. Provide adequate sanitary facilities for the use of those employed on the Work. Sanitary facilities shall be made available when the first employees arrive on the site of the Work, be properly secluded from public observation, and be maintained during the progress of the Work in suitable numbers.
- B. Maintain sanitary facilities in an orderly and sanitary condition at all times and enforce their use. Rigorously prohibit the committing of nuisances on the site of the Work, on the lands of the Owner, or any adjacent property.

#### **PART 2 PRODUCTS**

NOT USED

#### **PART 3 EXECUTION**

NOT USED

**END OF SECTION**



## **SECTION 01560**

### **TEMPORARY CONTROLS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Requirements for cleaning, maintenance of the site, barriers and fences required during construction.

##### **1.02 CLEANING DURING CONSTRUCTION**

- A. Contractor shall perform clean-up operations during construction as herein specified.
  - 1. Control accumulation of waste materials and rubbish; periodically dispose of off-site. Bear all costs, including fees resulting from disposal.
  - 2. Maintain project in accordance with all local, State and Federal Regulatory Requirements.
  - 3. Store volatile wastes in covered metal containers, and remove from premises.
  - 4. Prevent accumulation of wastes that create hazardous conditions.
- B. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 1. Do not burn or bury rubbish and waste materials on site.
  - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
  - 3. Do not dispose of wastes into streams or waterways.
  - 4. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
  - 5. Use only those cleaning materials and methods recommended by manufacturer of surface material to be cleaned.
  - 6. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.
  - 7. Provide on-site containers for collection of waste materials, debris, and rubbish.
  - 8. Remove waste materials, debris, and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.
  - 9. Handle material in a controlled manner with as little handling as possible. Do not drop or throw materials from heights.
  - 10. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.
  - 11. During its progress, the work and the adjacent areas affected thereby shall be kept cleaned up and all rubbish, surplus materials, and unneeded construction equipment shall be removed and all damage repaired so that the public and property owners will be inconvenienced as little as possible.
  - 12. Where material or debris has washed or flowed into or been placed in existing watercourses, ditches, gutters, drains, pipes, structures, work done under this contract, or elsewhere during the course of the Contractor's operations, such material or debris shall be entirely removed and satisfactorily disposed of during the progress of the work, and the ditches, channels, drains, pipes, structures, and work, etc. shall, upon completion of the work, be left in a clean and neat condition.

### 1.03 DUST CONTROL

- A. Provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract.
- B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions or performance obligations of the Contractor.

### 1.04 EROSION AND SEDIMENT CONTROL

- A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
- B. Minimize amount of bare soil exposed at one time.
- C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.
- D. Construct fill and waste areas by selective placement to avoid erosive surface silts for clays.
- E. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- F. Construct sediment control devices for discharge from dewatering trenches.
- G. Construct all sedimentation control devices shown on the plans.

### 1.05 NOISE CONTROL

- A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
- B. Execute construction work by methods and by use of equipment which will reduce excess noise.
  - 1. Equip air compressors with Silencers, and power equipment with mufflers.
  - 2. Manage vehicular traffic and scheduling to reduce noise.

### 1.06 POLLUTION CONTROL

- A. Special care shall be taken to prevent contamination or muddying up or interfering in any way with the stream flows, if any along the line of work. No waste matter of any kind will be allowed to discharge into the stream flows or impounded water of any pools or other bodies of water.

### 1.07 SURFACE WATER CONTROL

- A. Take all precautions to prevent damage to the work or equipment by high waters or by storms. Engineer with the approval of the Owner may prohibit the carrying out of any work at any time when in his judgment, high water or storm conditions are unfavorable or not suitable, or at any time, regardless of the weather, when proper precautions are not being taken to safeguard previously constructed work or work in progress.
- B. In case of damage caused by the failure of the Contractor to take adequate precautions, the Contractor shall repair or replace equipment damaged and shall make such repairs or rebuild such parts of the damaged work, as the Engineer may require, at no additional expense to the Owner.

### 1.08 BARRIERS AND ENCLOSURES

- A. Fences and Barricades

1. Provide and maintain temporary fences, barriers, lights, guardrails, and barricades as indicated in the Contract Documents, or as necessary to secure the Work and adjacent property, and protect persons and property.

**B. Protection of Trees**

1. The Contractor shall take care not to harm trees along the sides of roads or within the existing facility in which the construction work is to be done or trees on adjacent lands except as indicated on the drawings or with the written permission of the Owner and any other owner of the trees involved. Care shall be taken not to cut tree roots so as to harm the growth of trees to remain.
2. If, in the opinion of the Engineer, any trees damaged during construction can be repaired, the Contractor shall satisfactorily repair same at no further cost to the Owner.
3. If, in the opinion of the Engineer, any tree damaged during construction cannot be repaired and should be removed, the Contractor shall satisfactorily remove and replace, in kind, same at no further cost to the Owner.

PART 2    PRODUCTS  
             NOT USED

PART 3    EXECUTION  
             NOT USED

**END OF SECTION**

## **SECTION 01570**

### **TRAFFIC REGULATIONS**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Requirements for traffic control for the duration of the Contract.

##### **1.02 REFERENCES**

- A. Manual of Uniform Traffic Control Devices (MUTCD) Latest Edition, including all latest revisions.

##### **1.03 PERFORMANCE REQUIREMENTS**

- A. Contractor shall have the sole responsibility for the maintenance and protection of traffic.
- B. An authorized representative of the Contractor shall be available on a 24-hour basis for the duration of the Contract for the purpose of correcting construction related impediments or hazards.

##### **1.04 SHOP DRAWINGS**

- A. In accordance with SECTION 01300 – SUBMITTALS, submit a traffic plan delineating requirements of this section, the Contract Drawings. Traffic control plans shall detail all typical work zones and detours.

##### **1.05 SITE CONDITIONS**

- A. Replace, at no cost to the Owner, pavement markings, legends and lane arrows removed or damaged by the construction operation.
- B. Restore temporary detours to original condition.
- C. Replace traffic signal loops damaged during construction within 72 hours.

#### **PART 2 PRODUCTS**

##### **2.01 TRAFFIC CONTROL DEVICES**

- A. In accordance with the MUTCD.

#### **PART 3 EXECUTION**

##### **3.01 INSTALLATION OF TRAFFIC CONTROL DEVICES**

- A. In accordance with the MUTCD.

##### **3.02 PROTECTION OF TRAFFIC**

- A. Barricade trenches and roadway excavations at the end of each work period with temporary precast concrete barriers, properly lighted and marked to guide traffic to designated travel lane, or other means acceptable to the Engineer and approved on the Traffic Plan.

- B. Maintain and protect traffic movements for the entire length of the project.
- C. Keep one lane of traffic open at all times except for brief stoppages dictated by the construction operation involving safety of vehicles in the travel lanes.
- D. Maintain access to business and private ways during construction operations.
- E. Furnish sufficient number of signs, temporary precast concrete barriers, warning lights, drums and traffic cones to warn traffic of construction and guide traffic through the construction area in accordance with the MUTCD.

**END OF SECTION**

## **SECTION 01600**

### **MATERIALS AND EQUIPMENT**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

###### **A. Section Includes**

1. Requirements for delivery, storage, handling and installation of systems, materials, manufactured units, equipment, components, and accessories used in the work.

###### **B. Related Sections**

1. Section 01300 - Submittals

##### **1.02 DELIVERY**

- A. Refer to Specifications' Sections for requirements pertaining to delivery and handling of materials and equipment.
- B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturers' unopened containers or packaging, dry.
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- D. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct, and products are undamaged.

##### **1.03 STORAGE AND PROTECTION**

- A. Refer to Specifications' Sections for requirements pertaining to storage and protection of materials and equipment.
- B. Store products in accordance with manufacturers' instruction, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.
- C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged, and are maintained under required conditions.

#### 1.04 INSTALLATION STANDARDS

- A. Comply with Specifications and referenced standards as minimum requirements.
- B. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.
- C. Do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the Contract Documents.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- F. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 01300 - Submittals, distribute copies to persons involved, and maintain one set in field office.
- G. Perform work in accordance with details of instructions and specified requirements.

#### PART 2 PRODUCTS

NOT USED

#### PART 3 EXECUTION

NOT USED

**END OF SECTION**

## **SECTION 01800**

### **MAINTENANCE**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Procedures for maintaining work completed under this Contract.

##### **1.02 MAINTENANCE PERIOD**

- A. The general maintenance period for all construction or materials under this Contract shall be one (1) year subsequent to the date of the acceptance of the work by the Owner, or as provided by other sections of this Specification.
- B. If the Owner puts any structure or equipment to use prior to acceptance of all work under the Contract, the maintenance period for such structures or equipment shall be calculated from the time use begins.
- C. Contractor agrees to replace the material which does not conform to the Contract requirements, and to repair any damage of material or work without cost to the Owner, to satisfaction of Engineer, in conformance with Contract Documents provided orders for replacement and/or repairs are received in writing by the Contractor within the one year period.
- D. This Section shall in no way limit the duration of the Contractor's responsibility for the correction of any defect due to workmanship or materials provided by the Contractor which are not in compliance with the Contract Documents.

##### **1.03 ABUSE OF WORK**

- A. Contractor is not obligated to perform work of replacement or repair that he may prove is required because of abuse by parties other than the Contractor, after the date the Owner puts to continuous use the work requiring replacements or repair, or after date the Owner has approved the Certificate of Completion.

##### **1.04 EMERGENCY REPAIRS**

- A. If the Owner deems necessary, the Owner shall order replacement or repairs be undertaken within 24 hours.
- B. If the Contractor delays or fails to make the ordered replacement or repairs within the time specified, the Owner shall have the right to make such replacements or repairs and the expense shall be deducted from moneys due the Contractor, or moneys of the Contractor retained by the Owner.



PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

**END OF SECTION**

**DIVISION 2**  
**ROADWAY WORK**

**SECTION 02500**  
**SPECIAL PROVISIONS**

All work under this Contract shall be done in conformance with the *2021 Standard Specifications for Highways and Bridges*, the *Supplemental Specifications* contained in this book, the *2017 Construction Standard Details*, the *Traffic Management Plans and Detail Drawings*, *MassDOT Work Zone Safety Temporary Traffic Control*, the *1990 Standard Drawings for Signs and Supports*; the 2015 Overhead Signal Structure and Foundation Standard Drawings, the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* with Massachusetts Amendments; the *1968 Standard Drawings for Traffic Signals and Highway Lighting*; *The American Standard for Nursery Stock*; the Plans and these Special Provisions.

References within the Standard Specifications to MassDOT, the Department, the Owner or the Engineer shall, for the purposes of this Contract, be construed to mean the City or its designated representative.

**ENGINEERING DIRECTIVES**

Contractors can access MassDOT, Highway Division Engineering Directives at:  
<https://www.mass.gov/massdot-engineering-directives>

Manuals and Publications

<https://www.mass.gov/massdot-highway-division-manuals-and-publications>

**DISPOSAL OF EXCESS MATERIAL**

Surplus materials obtained from any type of excavation, and all existing and other materials not required to be removed and stacked or needed for use on the project, as determined by the Engineer, shall become the property of the Contractor and disposed of subject to the regulations and requirements of local authorities governing the disposal of such materials, at no additional compensation.

**CONSTRUCTION (STAKES) STAKINGS**

*(Replace Subsection 5.07 with the following:)*

The Contractor, without additional compensation, shall maintain all survey controls throughout the prosecution of the work and shall perform all required construction layout. Finished surfaces in all cases shall conform, as near as practical, in accordance with the grades and guidelines provided in the Contract Documents.

The Contractor, at his/her own expense, will furnish the following survey work:

- A. Establishment of base lines or centerlines of construction for main roadways, ramp service roads, side streets and other major dry land items. Reproduction of base lines and

centerlines, or lines offset to them when roadway cuts and fills have been completed. Levels may be taken on the points marking these lines.

- B. Original grade stakes at 50' intervals giving finished grades as per plan.
- C. Preliminary and final surveys of pits (if borrow is paid by pit measure) and dredging areas, semifinal cross sections on ledge, peat, loam, etc.
- D. Control for structures, which shall consist of range lines on centerline of bearings or centerline of piers, face of abutments and wingwalls, horizontal and vertical control for beam seats, along with benchmarks close to structures for vertical control. Structures shall include but shall not be limited to bridges, culverts, dams, buildings, and walls.
- E. Control for alignment of curbing or edging on ramps and at other complicated locations.
- F. Bound points and sideline stakes.
- G. All necessary stakes for pipes and head walls and establish all catch basin and manhole locations as to line and grade.

The Contractor shall employ qualified engineering personnel to ensure adequate control and shall furnish and set stakes of the quality used by the Department for control staking. Rough stakes may be used to denote top and bottom of slopes, edge of pavement, gutter lines, etc.

The Contractor shall furnish and set at his/her own expense, all stakes (such as batter boards, slope stakes, pins, offset stakes, etc.) required for the construction operations and he shall be solely responsible for the accuracy of the line and grade of all features of his/her work.

The Contractor shall be held responsible for the preservation of all stakes and marks. If any of such stakes or marks are disturbed or destroyed the cost of replacing them shall be at the Contractor's expense.

#### **ARCHITECTURAL ACCESS BOARD TOLERANCES**

The Contractor is hereby notified that they are ultimately responsible for constructing all project elements in strict compliance with the current AAB/ADA rules, regulations, and standards.

All construction elements in this project associated with sidewalks, walkways, wheelchair ramps and curb cuts are controlled by 521CMR - Rules and Regulations of the Architectural Access Board (AAB). The AAB Rules and Regulations specify maximum slopes and minimum, dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope or for dimensions less than the minimum dimensions.

Contractors shall establish grade elevations at all wheelchair ramp locations and shall set transition lengths according to the appropriate table in the Construction Standards (or to the details shown on the plans).

#### **ORDERING OF MATERIALS AND DRAWINGS**

Within thirty (30) days of receipt of the Contract notice to proceed (NTP) the Contractor shall provide the Engineer with written evidence, in the form of a purchase order (if applicable), the following information:

1. Shop drawings have been requested for all materials for which shop drawings are required for this contract;
2. That all traffic control devices, poles, pre-cast foundations, and any other required equipment for which shop drawings are not required for have been ordered; and,
3. That the drainage structure frames, grates, covers and other such castings and materials, necessary to complete the project, have been ordered from a supplier or manufacturer.

The Contractor shall further provide the Engineer written evidence within thirty (30) days of receipt of the Contract NTP that these orders have been confirmed in writing by the manufacturer with delivery dates appropriate for timely completion of the project. These confirmations of orders will become part of the project records.

Failure to comply with any of the ordering requirements shall nullify a request for an extension of the project completion date as a consequence of late delivery of signal control devices or castings.

#### **SHOP DRAWING SUBMITTAL** (Supplementing Subsection 5.02)

Within 15 days after receipt of an approved shop drawing for any item, the Contractor shall provide the Engineer written proof that he has ordered such approved materials required on the subject contract and a written confirmation of such order and delivery schedule from the manufacturer of the particular item. This delivery schedule shall be appropriate for timely completion of this project.

All shop drawings and related calculations shall be stamped by a Professional Engineer registered in Massachusetts.

#### **PERMITS AND LICENSES** (Supplementing Subsection 7.03)

The Contractor is responsible to acquire all required permits from the City of Attleboro. Permit fees for all permits will be incidental to the work.

Before any electrical work is performed, and within 10 days after the Contract NTP is issued, the Contractor shall submit a list, as well as copies, of the current electrical licenses of all electricians, including the Master Electrician and any Journeyman Electricians, licensed in Massachusetts, who will perform the electrical work required for this Contract.

#### **PUBLIC SAFETY AND CONVENIENCE** (Supplementing Subsection 7.09)

Vehicular and pedestrian travel on the public way shall be maintained by the Contractor during construction and access to abutting properties shall be provided at all times. If so directed, temporary access walkways will be provided by the Contractor to insure safe passage under all weather conditions.

#### **INVESTIGATION OF UNDERGROUND FACILITIES**

The Contractor's attention is directed to the necessity of making his own investigation in order to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur. The Contractor shall notify the City and Mass. DIG SAFE and procure a DIG SAFE number for each location prior to disturbing the existing ground in any way.

## **DIG SAFE Call Center 1-888-344-7233**

It should be noted that the City of Attleboro is not a member of DIG SAFE, and therefore, needs to be contacted directly regarding existing drainage, water, or sewer lines. The Contractor shall notify the Town and Dig Safe 72 hours prior to start of construction.

## **NOTICE TO OWNERS OF UTILITIES**

(Supplementing Subsection 7.13)

Written notice shall be given by the Contractor to all public service corporations or municipal and State officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one (1) week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Engineer.

The following are the names and addresses of some of the agencies which may be affected and must be notified. Completeness of this list is not guaranteed. The Contractor shall assure that all affected agencies are notified.

City of Attleboro  
Highway Division  
77 Park Street  
Attleboro, MA 02703

Michael Tyler, Superintendent  
(508) 223-2222, ext.3161

City of Attleboro  
Wastewater Division  
27 Pond Street N  
Attleboro, MA 02703

Thomas Hayes, Superintendent  
(774) 203-1820

City of Attleboro  
Water Division  
1296 West Street  
Attleboro, MA 02703

Kourtney Allen, Superintendent  
(508) 223-2222, ext.1850

National Grid (Electric)

(800) 548-8000

Eversource (Gas)

(508) 895-4818

Verizon (Telephone)

(800) VERIZON

Comcast (CATV)

(800) COMCAST

## **DEWATERING**

The Contractor's attention is directed to construction operations which may occur in the vicinity of wetland areas, pond, brooks and/or surface or subsurface areas where surface water or

groundwater may exist or accumulate. All dewatering and related work shall be conducted in such a manner as to prevent siltation or contamination of any adjacent resource area. Pumping discharge shall not be allowed to enter directly or indirectly into any wetland resource area without prior treatment (filter bags, silt sacks, settling basins, etc.) The Contractor shall include under each pertinent item all labor, materials, and equipment necessary to dewater the affected areas for proper installation of the respective items. No additional compensation will be made for dewatering but shall be considered incidental and included in the price for each respective item.

### **STEEL PLATES IN CONSTRUCTION ZONES**

At the end of each working day where trenches in areas of public travel are covered with steel plates, (Ref. subsection 7.09), each edge of such plates shall either be beveled or protected by a slope of 2 feet horizontally to 1 inch vertically. Any temporary patching material may be used to construct the ramps. The cost of necessary patching materials, and their maintenance and removal, will be considered incidental to the item involved with no separate payment.

### **MAINTENANCE OF EXISTING TREES**

Caution shall be taken by the Contractor not to damage plants by burning, by pumping of water, by cutting live roots or branches, or by any other means. No plants to be saved shall be used for crane stay, guys or other fastenings. Vehicles shall not be parked where damage may result to trees to be saved. Construction materials shall not be stored beneath trees to be saved.

Existing shrubs, vines, and groundcover to be saved that are damaged, as determined by the Engineer, shall be replaced with plants of equal size. All costs incurred shall be paid for by the Contractor at his own expense.

### **ENVIRONMENTAL CONTROLS**

All construction equipment shall be fitted with suitable muffling devices so that the noise from construction operation shall be properly controlled.

The Contractor shall control all dirt, dust erosion and other related construction emissions from the project to the satisfaction of the Engineer.

### **SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS**

(Supplementing Subsection 850.21 and 850.61)

Safety controls for construction operations shall be done in accordance with the relevant provisions of Section 850 of the Standard Specifications, the Manual on Uniform Traffic Control Devices (MUTCD), the Traffic Management Plan, and the following:

The providing of safety controls for construction operations, unless otherwise paid for under other items in the contract, shall be considered incidental to Item 748.

Positioning, adjusting, re-positioning and removal of all devices such as traffic cones, high level warning devices, portable Type I, II and III barricades, arrow boards, etc., not otherwise classified and paid for under other items in this contract, is considered incidental to Item 748.

All safety signing, temporary pavement markings, reflectorized and lighted drums, and all other safety controls used for construction operations shall conform to the NCHRP 350 and the MUTCD, Current Edition, for Street and Highways including all amendments.

**PROPERTY BOUNDS** (Supplementing Subsection 7.13)

The Contractor shall exercise due care when working around all property bounds which are to remain. Should any damage to a bound result from the actions of the Contractor, the bound shall be replaced and/or realigned by the Contractor as directed by the Engineer. No further compensation will be due the Contractor for the materials and labor required to re-establish the bound in its proper position as shown on the plans or as found in the field.

**DRAINAGE** (Supplementing Subsection 7.13)

Where new pipe is shown on the drawings to be connected into an existing drainage structure to remain, the existing structure shall be first cleaned to remove all mud, debris and other material. The existing structure wall shall be carefully and neatly cut to provide the minimum size opening required for the insertion of the new pipe. The proposed pipe end shall be set or cut off flush with the inside face of the existing structure wall and the remaining space around the pipe completely filled with cement grout for the full thickness of the structure wall.

Existing shaped inverts shall be reconstructed, as necessary to provide a smooth and uniform flow channel from the new pipe through the existing structure.

No separate payment will be made for the cost of connecting new pipes into existing structures or culvert, cleaning, and necessary alterations of existing structures, but all such costs shall be taken as included in the unit prices bid for the various pipe items. In addition, no separate cost will be made for existing frame and grate (or cover) to be removed and stacked, but shall be made incidental to the appropriate drainage structure items, whether it be adjusted, change in type, remodeled, abandoned, or proposed.

All new pipes and structures within the limits of this contract shall be left in a clean and operable condition at the completion of the work.

**PROTECTION OF UTILITIES AND PROPERTY** (Supplementing Subsection 7.13)

The Contractor, in constructing or installing facilities alongside or near sanitary sewers, storm drains, water or gas pipes, electric or telephone conduits, poles, sidewalks, walls or other structures, shall, at his expense, sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. He shall also be responsible for the repair or replacement, at his own expense, of any damage to such structures caused by his acts or neglect and shall leave them in the same condition as they existed prior to the commencement of work. In case of damage to utilities, the Contractor shall promptly notify the owner and shall, if requested by the Engineer, furnish laborers, material and equipment as directed by the Engineer to work temporarily under the owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the Town or by the utility company which suffers the loss. The cost of such repairs shall be borne by the Contractor, without compensation therefore.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable, in the judgment of the Engineer, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the Department will, as soon thereafter as it reasonably can, cause the position of the utilities to be changed or take such other action as it deems suitable and proper.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in protecting or repairing property as specified in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

The Contractor will cooperate fully with all utility companies private or public, and will notify all such companies at least twenty-four hours prior to excavating in the vicinity of any utility. It is understood that the Contractor has considered in his bid the existence of the various utilities and that no additional compensation will be allowed for any delays, inconvenience, or damage sustained by him due to any interference by said utilities.

#### **GAS GATES**

It shall be the sole responsibility of the Contractor to coordinate with Eversource Gas to have any and all gas gates adjusted to the proper grades or as directed by the Engineer. Unless otherwise directed by Eversource Gas, it shall be the responsibility of Eversource Gas to adjust said gates. In any case, however, no measurement or payment will be made for any gas gates adjusted by the Contractor.

#### **WORK SCHEDULE** (Supplementing Subsection 8.02)

Work on this project is restricted to a normal eight-hour day (7:30 AM to 4:00 PM), five-day week, with the Prime Contractor and all Subcontractors working on the same shift. The Contractor may be allowed to revise work hours at the discretion of the City. Night work will be allowed for certain construction activities such as milling and paving. Work may be allowed on weekends and holidays if approved by the City.

Roadways must remain accessible throughout the construction for emergency apparatus and residents. The Contractor shall prepare and submit to the Engineer a proposed work schedule and traffic management plan which complies with the Contract Documents. No work shall start until the Engineer's approval of the schedule is received. The Contractor shall notify the Engineer 14 days before construction starts.

Before starting any work on this contract, the Contractor shall submit a schedule of operations as provided in Subsection 8.02.

The Contractor's prosecution of the work shall comply with the following:

- A minimum of one lane of traffic in each direction of travel must be maintained on all streets at all times, except where otherwise approved by the City in advance.
- Work at the intersection shall be undertaken so as to maintain all existing turning movements.



- Pedestrian and vehicle access to all abutting properties shall be maintained except for very short periods of time. When it is necessary to deny access to a property, the owner shall be informed at least 48 hours in advance

**DELAY AND SUSPENSION OF WORK** (Supplementing Subsection 8.09)

The Contractor shall suspend all work in streets between November 15 and April 15, unless otherwise approved by the Engineer. Any top course paving or concrete sidewalk work shall be completed by October 15, unless otherwise approved by the Engineer.

**FAILURE TO COMPLETE WORK ON TIME** (Supplementing Subsection 8.11)

In case work has not been physically completed by the time stipulated in the contract, and temporary provisions must be made to satisfactorily close out work as determined by the Engineer, the Contractor shall provide such temporary provisions at no cost to the Owner. This may include, and is not limited to structure adjustments, temporary pavement markings, temporary driveway apron adjustments, and any other temporary provisions determined necessary by the Engineer.

**MEASUREMENT AND PAYMENT** (Supplementing Section 9.04)

*Replace all references to “biweekly” with “monthly”.*

*Replace the second paragraph of this subsection with the following:*

There will be a retainage of five (5%) percent for all items of work.

**MATERIALS REMOVED AND STACKED** (Supplementing Subsections 580.64, 630.63)

Materials directed to be removed and stacked, which are privately owned, shall be removed, transported to, and stacked on the property where materials have been removed, as directed by the Engineer.

If the Engineer determines that any part of the stacked materials are unsuitable for re-use by the City, or if other owners decide to abandon part or all of their materials, such materials shall become the property of the Contractor and he shall dispose of them away from the site.

The contract prices for the various items shall include full compensation for the services noted above.

**LAYDOWN/STAGING AREA**

The Contractor will be allowed to use the City owned parcel located at the northwest corner of Thacher Street and Rathbun-Willard Drive for a laydown area/storage of materials.

END OF SECTION

**SECTION 02550  
CONSTRUCTION SPECIFICATIONS**

**ITEM 101.15**

**SITE PREPARATION**

**LS**

The work under this Item shall conform to the relevant provisions of Section 101, and shall include miscellaneous clearing and grubbing, shrub removal, tree trimming, the removal and stacking of existing materials noted on the plans to be removed or required to be removed to construct the project (as shown on the plans or as directed by the Engineer) and, other activities not otherwise included under other items of the contract.

The work under this Item shall also consist of providing all labor, equipment, materials, incidental work, and construction methods necessary to protect existing trees, shrubs, and other plant materials to remain from damage as a result of the Contractor's operations.

The work under this Item shall include, but not be limited to, the following:

- Miscellaneous clearing and grubbing within the limits of the work as required to construct the Project and as shown on the plans, unless features are noted to be retained.
- Removing and proper disposal of all stumps, shrubs, and brush, not noted to be retained and as directed by the Engineer. Work requires prior approval of Engineer.
- Trimming trees along roadside as required to construct the Project and as directed by the Engineer.
- Providing Tree/Plant Protection as noted on the plans or as otherwise noted by the Engineer. Options for Tree/Plant Protection are detailed on the plans.
- Trimming and proper disposing of waste from trees noted on the plans and/or as required by the Engineer.
- Removal of all trees regardless of size to construct the Project. Work requires prior approval of Engineer.

***Tree Protection***

Prior to any construction activities, the Contractor and his Massachusetts certified Arborist shall walk the site with the Engineer and City Tree Warden to confirm, which trees shall require protection and determine which measures to be used. The Arborist shall make recommendations on measures to be used. The Engineer will have final decision as to trees and measures.

Tree protection practices shall be in accordance with the International Society of Arboriculture, Savoy, IL 61874 (ISA): Guide for Plant Appraisal and Commonwealth of Massachusetts Highway Department (MassDOT): Specifications Standard Specifications. Tree protection shall also include protecting roots and when necessary, appropriately prune roots when excavation is necessary. All temporarily exposed roots shall be covered with mulch and moistened on a daily basis until final construction application is completed according to the plans. The tree protection fence shall be removed just prior to spreading of loam.

Temporary Tree Protection Fence shall comply with M6.08.1 and shall be brightly colored polypropylene barricade or wooden snow fencing for tree protection or safety fencing. Fencing

shall be a minimum of 4 feet high and supported by steel or hardwood stakes spaced at a maximum of 8 feet on center or by other means acceptable to the Engineer.

If the existing trees to be saved within or outside the limit of work line are damaged, and/or existing shrubs, vines, and groundcover to be saved are damaged, as determined by the Engineer, they shall be replaced with plants of greater size. All costs incurred shall be paid for by the Contractor at his own expense.

### ***Tree Trimming***

Tree Trimming shall be performed under the direct on-site supervision of a Massachusetts Certified Arborist, whose name and qualifications shall be submitted to the Engineer. Work shall be performed by personnel who can demonstrate a minimum of ten years of experience in pruning shade trees along public right of ways. Contractor shall be required to provide a crew, consisting of a bucket truck with operator and grounds man for Pruning and Removal efforts. The use of climbing spurs or spiked shoes shall not be permitted.

Pruning shall be performed in a manner so as to maintain the natural aesthetic characteristics of the species and variety of trees. No topping or dehorning of trees or stubbing back of branches shall be permitted. All cuts shall be made sufficiently close to the parent stem so that wood closure can be readily started under normal conditions. However, cuts shall never be made through the branch collar. Slap cuts and rip cuts will not be allowed.

Pruning will be done in accordance with the National Arborists Association Pruning Standards as found within the Standard Practices for Tree, Shrub and Other Woody Plant Material, ANSI A300. No limb shall be removed to gain access to the interior of the tree by aerial lift. Dense headed trees shall be pruned by climbing.

Pruning performed shall include the provision of proper clearance from utilities, structures, buildings, and luminaries, as well as to establish clearances elevation over street and sidewalk surfaces.

The Contractor shall coordinate with utility companies to determine branches or trees requiring removal. Any tree trimming required by utility relocation shall also be included in this work.

### **COMPENSATION:**

Payment under this Item shall be a Lump Sum, which sum shall constitute full compensation for all material, labor, transportation, equipment and incidental work and costs necessary to perform the various items of work noted herein, including the services of a certified arborist, to the satisfaction of the Engineer. Payment shall be prorated over the course of the project, as determined appropriate by the Engineer.

Removal and proper disposal of all brush, shrubs and trees within the limits of the work shall be consider incidental to this item therefore no additional compensation shall be made.

**ITEM 120.1****UNCLASSIFIED EXCAVATION****CY**

The work to be done under this Item shall consist of removing and disposing in accordance with the relevant provisions of Section 120, all the materials obstructing the execution of required work, as shown on the plans and as directed, except for those materials for which payment is made inclusive with work specified to be performed under other items of this Contract.

The work under this Item shall include all excavation, not otherwise included for payment under other items of this contract, including, but is not limited to, the removal and disposal, if necessary, of the following: buried foundations, curbing, concrete slabs, reinforced concrete, rock, granite, cobblestones, muck, guardrail, fencing and posts including sign posts and anchor sleeves, not otherwise paid for under other Items of this contract. The removal and discarding of curbing not selected for reuse or stacking, as determined by the Engineer shall be paid for under this Item.

Work under this Item shall also include excavation of bituminous concrete pavement at limits of resurfacing and reconstruction; box widening, and at curb lines in areas of resurfacing. Edges of excavation made in existing pavements shall be squared by saw cutting with power driven tools to provide a neat, clean edge for joining new pavement as shown on the Plans. Ragged, uneven edges shall not be accepted. Pavement areas that have been broken or undermined shall be edged neatly with a minimum disturbance to remaining pavement. Payment for this saw-cutting work shall be considered included under this Item.

Work under this Item may also include test pits as directed and approved by the Engineer in advance. The maximum pay limits for a test pit shall be no more than 3' x 3' to the depth approved by the Engineer, unless otherwise directed by the Engineer.

When working next to existing retaining walls, the Contractor shall exercise extreme caution not to disturb existing walls. If existing walls are disturbed, they shall be reconstructed at the Contractor's expense to thoroughly match the existing wall in color, texture, material and workmanship.

Payment under this Item shall be at the Contract Unit Price bid per Cubic Yard, which price shall include all labor, materials, and equipment necessary to complete the excavation and disposal of unwanted or surplus material, not covered by other items of this contract.

Excavation for sidewalks, driveways, curb and roadway widenings shall be incidental to those items to which it pertains.

Payment for temporary HMA patch shall be paid under Item 472.

<b>ITEM 220.</b>	<b>DRAINAGE STRUCTURE ADJUSTED</b>	<b>EACH</b>
<b>ITEM 220.2</b>	<b>DRAINAGE STRUCTURE REBUILT</b>	<b>FOOT</b>
<b>ITEM 220.5</b>	<b>DRAINAGE STRUCTURE REMODELED</b>	<b>EACH</b>

Work under these Items shall conform to the relevant provisions of Section 220 and shall be applicable to all types of municipal structures, including drainage and sanitary structures.

Work under Item 220. shall include adjusting sewer manhole castings, stormwater manhole castings, catch basins castings and gutter inlet castings to the proposed finished grade when the adjustment to grade is 6 inches or less.

Work under Item 220.2 shall include vertical masonry rebuild for deteriorated structures as identified by the Engineer. **Any removal and resetting or adjustment of castings for any structure to be rebuilt shall be included in the unit price for structure rebuilt. No separate payment shall be made for the adjustment of structures that are rebuilt.**

Work under Item 220.5 shall include adjusting sewer manhole castings, stormwater manhole castings, catch basins castings and gutter inlet castings to the proposed finished grade when the adjustment to grade is greater than 6 inches.

Concrete collars shall be High Early Strength cement concrete. The dimensions of the concrete collars shall be as shown on MassDOT Construction Standard Drawing E 202.9.0. Concrete collars shall be incidental to the item of work to which they pertain.

Use of steel plates to cover open structures shall be considered incidental to the work and not cause for additional compensation.

Multiple adjustments that may be necessary as a result of the work sequence shall be considered part of the one-time measurement and payment and not cause for additional compensation.

Salvageable frames and grates or covers from existing structures to be removed shall be removed and reset to proposed structures as directed by the Engineer or, if not needed, shall be removed and stacked at the Town of Attleboro yard. Nonsalvageable frames and grates or covers from existing drainage structures to be removed shall become the property of the Contractor and shall be disposed of off the site. If frames and grates or covers from existing structures are nonsalvageable due to no fault of the Contractor, a new frame and grate or cover shall be supplied, installed and paid for under Item 222.3.

Payment under these items shall be at the Contract Unit price bid per Each or per Foot, which price shall include all labor, tools, materials, pavement sawcuts, concrete collar, setting/resetting the existing frame and grate (or cover) to proper line and grade, transporting/stacking/discarding the existing frame and grate (or cover) as necessary and all other necessary incidental expenses.

#### **FRAME AND GRATE (OR COVER)**

**ITEM 222.3**

**MUNICIPAL STANDARD**

**EA**

The work of these items shall conform to the relevant provisions of Section 200 of the Standard Specifications and the following:

Frames, grates, and covers shall be of good quality, strong, tough, even grained cast iron smooth, free from scale, lumps, blisters, sand holes and defects of any kind which render them unfit for the service for which they are intended. Grates, covers, and frame seats shall be machined to a true surface. Castings shall be thoroughly cleaned and subject to hammer inspection.

Manhole covers shall have a diamond pattern, pickholes and the appropriate word "DRAIN" or "SEWER" cast in 3-inch letters. Frames, grates, and covers shall be East Jordan Iron Works; Mechanics Iron Foundry; Neenah Foundry or approved equal.

Catch basin frames and grates shall be the City of Attleboro's standard and shall conform to all requirements of the City of Attleboro Department of Public Works.

Casting frames shall be set in a full mortar bed with bricks, a maximum of 8 inch thick.

#### **BASIS OF PAYMENT**

Compensation for this work shall be at the contract unit price bid for each item and shall include furnishing all labor, tools, materials, and all incidentals necessary to install as specified, complete, in place, at the required grade directed by the Engineer.

Payment under this Item shall include any adjustments to new castings required to meet finished grade.

<b>ITEM 357.06</b>	<b>6 INCH GATE BOX</b>	<b>EA</b>
<b>ITEM 358.</b>	<b>GATE BOX ADJUSTED</b>	<b>EA</b>

Work under these Items shall conform to the relevant provisions of Section 301 of the Standard Specifications, and the following:

This work will consist of adjusting gate boxes, regardless of size to conform to the proposed line and grade. Boxes located in street pavement shall have collars.

Gate boxes damaged by the Contractor's operations will be replaced by the Contractor at his own expense.

Boxes found to be inoperable due to no fault of the Contractor shall be replaced under Item 357.06, regardless of size, with new gate boxes in accordance with the City's standards.

Payment under Item 357.06 shall be at the Contract Unit price per Each, which prices shall be full compensation for all labor, equipment, materials to furnish and install new gate boxes, and all incidentals necessary to complete the work to the satisfaction of the Engineer.

Payment under Item 358 shall be at the Contract Unit price per Each, which prices shall be full compensation for all labor, equipment, materials to adjust boxes regardless of size to finish grade, or

to remove and dispose of old boxes not fit for reuse, and all incidentals necessary to complete the work to the satisfaction of the Engineer.

<b>ITEM 376.5</b>	<b>HYDRANT - ADJUSTED</b>	<b>EA</b>
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All work shall be done in accordance with Standard Specifications and standard details supplemented by American Waterworks Association Standard Specifications.

The work of this Item shall include the adjustment of the existing hydrant at STA 8+31 LT on Rathbun-Willard Drive. Said hydrant shall be raised to meet proposed grade in accordance with City of Attleboro standards.

Payment under this Item shall be at the Contract unit price bid, which sum shall include adjustment of existing hydrants, including necessary excavation, gravel borrow backfill, thrust blocks, pipe restraints, ductile iron pipe, fittings couplings, new valve box, pressure testing, chlorination, temporary restoration of surface and all other incidental work.

<b>ITEM 381.</b>	<b>SERVICE BOX</b>	<b>EA</b>
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<b>ITEM 381.3</b>	<b>SERVICE BOX ADJUSTED</b>	<b>EA</b>
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Work under these Items shall conform to the relevant provisions of Section 301 of the Standard Specifications and the following:

The work of these Items shall include adjusting service boxes and/or providing new service boxes if existing boxes are already damaged, and water services that are impacted by construction and/or do not appear on the contract plans or record plans.

Service boxes shall be cast iron. Extension service boxes of the required length and having slide-type adjustment shall be installed at all service box locations. The boxes shall have housings of sufficient size to completely cover the service stop and shall be complete with identifying covers.

Service boxes in driveways or in street pavement shall have concrete collars. Service boxes in sidewalk areas are not required to have a concrete collar.

Any service box damaged due to the Contractor's operation will be replaced by the Contractor at his own expense.

Service boxes found to be inoperable due to no fault of the Contractor shall be replaced with new service boxes and shall be paid for under Item 381.

Service Box and Service Box Adjusted shall be measured by the unit each.

Payment will be at the contract unit bid price per each, which price shall be considered full compensation for all labor, equipment, materials and incidentals necessary to complete the work to the satisfaction of the Engineer.

<b>ITEM 460.23</b>	<b>SUPERPAVE SURFACE COURSE – 12.5 (SSC - 12.5)</b>	<b>TON</b>
<b>ITEM 460.31</b>	<b>SUPERPAVE INTERMEDIATE COURSE – 12.5 (SIC – 12.5)</b>	<b>TON</b>
<b>ITEM 460.41</b>	<b>SUPERPAVE BASE COURSE – 25.0 (SBC – 25.0)</b>	<b>TON</b>

Work under these items shall conform to the relevant provisions of Section 460 of the Standard Specifications, and the following:

Each course shall be constructed to the depth, typical section, or elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

The Contractor shall plan the paving operation to meet the proposed finish grades shown on the plans. He shall coordinate his depth of milling and overlay operations, such as to meet these finish grades.

Street sweeping shall be performed by a mechanical street sweeper vehicle to clear the paved surface of all debris, to the extent as determined by the Engineer. There shall be no separate payment for street sweeping. Payment for such work shall be included in the various contract items.

The timing of the street sweeping operation should be such that the road remains sufficiently clean between the completion of the sweeping and the start of any repaving. Should the Engineer decide that the road surface requires additional sweeping, no additional compensation shall be offered the Contractor to complete this process.

No additional compensation will be allowed when street sweeping operations are used as a means of clearing off and/or exposing areas of pavement covered with vegetation or debris.

All material collected from the street sweeping process shall be disposed of by the Contractor outside and away from the limits of the project with no additional measurement or payment to be made.

Tack coat and sand shall be applied to all joints composed of hot mix asphalt immediately after paving or as directed by the Engineer. Tack coat and sand, when applied to joints in accordance with subsection 460.62, shall be considered incidental to these items with no additional measurement or payment to be made.

All final exposed joints shall be entirely coated with hot poured rubberized asphalt sealer. The application will deliver sufficient sealant to effectively bond and seal transverse and longitudinal joints. Any areas on joints without sufficient hot rubber material will require either re-application or localized handwork as directed by the Engineer. Hot Poured Rubberized Asphalt Sealer shall be placed at paving joints and considered incidental to these items with no additional measurement or payment to be made.

It should be noted that roads could require several lifts of leveling material in order to eliminate water problems in low spots prior to placing the top course of hot mix asphalt.



Paper joints shall be used when the road is not completed in its entirety. The joint shall be underlain with tarpaper and hot mix asphalt shall be placed on top next to the existing pavement. No joints shall be left at intersections of roadways. Special care should be taken to leave any joints no less than twenty feet away from all radius points at intersections or as directed by the Engineer. Side street aprons shall be paved in the same pass as the road itself.

Payment under these Items shall be at the Contract Unit Price bid per Ton and include all necessary work to prepare the pavement surface, including street sweeping and tack coat spread by truck-mounted sprayer, hot poured rubberized asphalt sealer, and all labor, materials, equipment and incidental costs required to complete the work. Tonnage shall be determined by weight slips submitted to the Engineer. Where weight slips are unavailable, the inch per square yard method shall determine tonnage (inches of specified thickness, multiplied by square yard unit measurement, multiplied by the volume to weight conversion factor of 0.056 tons/inch/square yard). This calculation method shall also be used to confirm tonnage used.

Temporary patch for utility trenches shall be paid under Item 472.

The sawcutting, excavation, and fine grading and compaction of the subgrade area in full depth box widening sections shall be incidental to these items.

<b>ITEM 472</b>	<b>TEMPORARY ASPHALT PATCHING</b>	<b>TON</b>
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Work under this Item shall conform to the relevant provisions of the Standard Specifications, the special provisions for Items 460.23 and 460.31, and the following:

Work will include temporary trench repair in areas to be milled and overlaid (where not otherwise included under other items), miscellaneous patching, utility trench patching and other uses as may be directed by the Engineer. Hot mix asphalt for miscellaneous work shall also be used to provide temporary access and egress to properties abutting the work area, as determined by the Engineer. The Contractor is advised that this is material which will be spread primarily by hand.

No additional compensation will be made for cutting existing pavement in order to provide a clean match line. No payment will be made for roadway patching done outside the excavation pay limits as detailed on the plans. The subsequent removal of this material, if directed by the Engineer, shall also be included in this Item.

Hot Mix Asphalt for miscellaneous temporary work shall be placed only upon the direction of the Engineer.

Tonnage shall be determined by weight slips submitted to the Engineer. Where weight slips are unavailable, the inch per square yard method shall determine tonnage (inches of approved thickness, multiplied by square yard unit measurement, multiplied by the volume to weight conversion factor of 0.056 tons/inch/square yard). This calculation method shall also be used to confirm tonnage used.

Compensation for this Item shall be at the Contract Unit Price per Ton, which price shall include all labor, materials, equipment for surface preparation, placement, maintenance and removal, and incidental costs necessary to complete the work to the satisfaction of the Engineer.

The Contractor shall be required to maintain areas of temporary pavement in reasonable repair, as determined by the Engineer, and not be compensated for additional materials, labor and incidentals required to do so.

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<b>ITEM 506.01</b>	<b>GRANITE CURB TYPE VA4</b>	<b>FT</b>
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Work under this Item shall conform to the relevant provisions of Section 500, supplemented and amended as follows:

The work shall include furnishing and installing all granite curb, Type VA4, including straight or curved sections, splayed or transition pieces for wheelchair ramps and driveways, curb corners, and curb inlets with measurement made per foot measured along the centerline axis of the curbing or edging. A six-foot minimum piece shall be used at all curb inlets.

Transition Curb shall be used to make the transition from normal curb setting at wheelchair ramps, driveway curb cuts and at the limits of work as shown on the MassDOT Construction Standard and as detailed on the plans. Curb transitions shall be of the same type and similarity as the abutting curb. The ends of the transition curb shall be cut so that a flush joint is formed where the transition curb meets the existing or proposed curbing. Transition curb shall be a minimum length of 6.5 feet and a maximum length of 15 feet. No additional payment will be made for customizing curb material to affect the transition.

Curb transitions shall be of the same type and similarity as the abutting curb. The ends of the transition curb shall be cut so that a flush joint is formed where the transition curb meets the existing or proposed curbing.

All granite curbing shall be provided with concrete support, as shown on the construction detail. Concrete support shall be provided on both sides of curbing that does not have a hard surface backing it up, such as in non-sidewalk areas. Cost of concrete support shall be included in the price bid for curb.

Payment under this Item shall be at the Contract Unit Prices bid per Foot for furnishing and installing granite curb with sawn inside face where required, complete in place including sawcutting, excavation, gravel borrow, fine grading and compaction of the subgrade and subbase, concrete supports, cutting and all other work to complete the installation of curb to the satisfaction of the Engineer.

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<b>ITEM 697.1</b>	<b>SILT SACK</b>	<b>EA</b>
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Work under this Item shall conform to the relevant provisions of the Standard Specifications and the details shown on the Plans.

The work under this Item shall conform to the relevant provisions of Section 670 and Section 227 of the Standard Specifications and consist of the furnishing, installing, maintaining, and removing silt sacks from all catch basins, drop inlets, and gutter inlets within the limit of work, or otherwise required.

Silt sacks shall be made out of woven polypropylene geotextile fabric and sewn by a double needle machine, using a high strength nylon thread. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

Silt sacks shall be manufactured to fit the opening of the catch basins and all curb openings shall be blocked to prevent stormwater from bypassing the device. Silt sacks shall be manufactured with two dump straps attached at the bottom of the silt sack. Silt sacks shall have a ¼-inch nylon expansion restraint rope with two (2) inch flat washers to keep the sides of the silt sacks away from the catch basin walls. Silt sacks shall be manufactured so that they have a certified average wide width strength per ASTM D-4884 standards of 165.0 lb/in for regular flow.

When the expansion restraint rope is covered with sediment, the silt sack shall be emptied, cleaned, and placed back into the catch basin.

All material removed from the silt sacks shall be properly handled and disposed of by the Contractor, and this must be done in accordance with all DEP regulations, policies, and guidance and at no additional cost to the Town. The responsibility for the proper handling and disposal of this material shall be solely the Contractor's.

Material removed from silt sacks shall be transported immediately to the place of disposal in machines or trucks that will not spill the material along the roadway. Any material falling on the roadway shall be removed at the Contractor's own expense.

Silt sack cleanings are classified as a solid waste by the Massachusetts Department of Environmental Protection (DEP) and may be disposed of at any landfill that is permitted by DEP to accept solid waste. Materials containing free-flowing liquids are prohibited from being accepted at landfills. The DEP encourages the beneficial reuse of this material whenever possible; however, use not in accordance with DEP determination, or disposal or use as fill in an unapproved location is not acceptable.

It is anticipated that most, if not all, of the material will be landfilled, therefore the Contractor should be aware that many landfills may require testing and analysis of the material prior to accepting it for disposal at the facility.

The Contractor should be aware that in the event that the test results indicate a hazardous waste that cannot be landfilled, the Contractor shall be responsible for all costs associated with adhering to special regulations regarding disposal of hazardous waste. The Contractor should take this into consideration in preparing the bid.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the silt sacks will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and dispose of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Town.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractor's expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

#### METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Compensation shall be at the contract unit price bid per each, and shall include the fabric, all labor, tools, materials, and any necessary incidental items, to provide complete in place installation, testing, inspections, maintenance, and silt removal and disposal throughout the duration of construction as directed by the Engineer. Said compensation shall also include the final removal and disposal of the fabric and silt upon the completion of construction.

All debris accumulated in silt sacks shall be handled and disposed of as described in Section 227.

<b>ITEM 701</b>	<b>CEMENT CONCRETE SIDEWALK</b>	<b>SY</b>
<b>ITEM 701.1</b>	<b>CEMENT CONCRETE SIDEWALK AT DRIVEWAYS</b>	<b>SY</b>
<b>ITEM 701.2</b>	<b>CEMENT CONCRETE PEDESTRIAN CURB RAMP</b>	<b>SY</b>

The work under these Items shall conform to the relevant provisions of Section 701 of the Standard Specifications, the plan details and the following:

All work shall conform to the latest edition of the MassDOT and ADA Standards. The Contractor is hereby notified that they are ultimately responsible for constructing all sidewalks, walkways, driveways and pedestrian curb ramps in strict compliance with the current AAB/ADA/PROWAG rules, regulations, and standards.

The AAB Rules and Regulations specify maximum slopes and minimum dimensions required for construction acceptance. There is no tolerance allowed for slopes greater than the maximum slope or dimensions less than the minimum dimensions.

**Sidewalks shall be constructed in accordance with requirements of the Standard Specifications, including placement of alternating sections, 30 feet in length and provided with expansion joints. Expansion filler shall also be used at pours against buildings, walls, or other hard fixed objects.** The surface of the sidewalks and driveways shall be scored 5 feet on center along the length of the sidewalk or driveway unless otherwise directed by the Engineer.

All wheelchair ramp joints and transition sections which define grade changes shall be formed, staked and checked prior to placing cement concrete. All grade changes are to be made at joints.

Sidewalk furniture including, but not limited to, utility poles, hydrants, traffic signal posts, signs shall be boxed out so that these items have panels just large enough to cover their base.

Contractor shall apply curing compound in accordance with Section 476.71C to all concrete surfaces. Curing compound shall be W.R. Meadows CS-309-30 OTC or Equal.

Contractor is responsible for securing areas and shall supply barricades or watchmen as necessary to prevent defacement of concrete surfaces.

Detectible warning panels shall be installed as shown on the Plans and as detailed in MassDOT Construction Standards details E 107.6.5. Panels shall be cast-in-place embedded in wet cement concrete. The panels shall conform to Americans with Disabilities Act (ADA) requirements and the color shall be colonial red. The Contractor shall provide a color sample and shall not order panels until City has approved color.

The work of this section includes the cement concrete cut-through.

Payment shall be by the Contract Unit Price bid per Square Yard, complete in place, to the satisfaction of the Engineer, and shall include all sawcutting, excavation, fine grading and compaction of the subgrade and subbase, protection, finishing and furnishing and installing detectable warning panels to ADA requirements. Payment under these Items shall also include temporary removal and resetting of obstructions (such as fences) for the purposes of forming and pouring sidewalks, walkways, driveways and pedestrian curb ramps that are not specifically paid for under another item.

**ITEM 702. HOT MIX ASPHALT SIDEWALK OR DRIVEWAY TON**

The work under this Item shall conform to the relevant provisions of Section 700 and the following:

Saw cutting of up to 6 inches of bituminous concrete or providing a keyway necessary to provide a stable joint with existing asphalt will be considered incidental to the handwork installation. No additional compensation will be made for saw cutting asphalt or cutting a keyway.

Payment shall made at the Contract Unit Price bid per Ton of hot asphalt mix placed and shall include all labor and materials necessary for placement, including but not limited to excavation, sawcutting, as well as fine grading and compaction of the subgrade and subbase.

**ITEM 711. BOUND REMOVED AND RESET EA**

Work shall be in accordance with Section 710 of the Standard Specifications and standard details. The resetting of bounds required or found to be required by the project shall be made and properly documented by a Massachusetts Registered Land Surveyor. Surveyor shall provide stamped hard copies of the new bound location, as well as digital files.

The Contract Unit Price bid for each bound shall include all necessary or incidental materials and labor, complete in place. Bounds unnecessarily disturbed by the Contractor operation, as determined by the Engineer, shall be reset in their original location by the Contractor at his own expense.

<b>ITEM 748.</b>	<b>MOBILIZATION AND DEMOBILIZATION</b>	<b>LS</b>
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This Item shall be for the mobilization/demobilization of personnel, equipment, and materials at the work site by the Contractor. This Item shall include, but is not limited to the movement of equipment, personnel, material, supplies, etc. to and from the Work site; the installation and removal of temporary facilities (when not paid for separately), construction layout, the furnishing, deploying and repositioning traffic management devices throughout the course of the project, including MUTCD compliant construction cones, portable Type I, II and III barricades, arrow boards, etc. Traffic Management layouts and devices shall be in conformance with MassDOT's standard details and drawings for the development of Traffic Management Plans. Road closures will not be allowed. The Contractor shall be required to provide at least two arrow boards during the entire construction period under this Item.

Payment under this Item shall be on a lump sum basis: 25% for mobilization, 25% for demobilization (minus retainage in both payments). The balance (minus retainage) will be incrementally paid for over the course of construction at intervals determined to be appropriate by the Engineer.

**As per the MassDOT Standard Specifications the price bid for this Item shall not exceed 3% of the bid price.**

<b>ITEM 751.</b>	<b>LOAM BORROW</b>	<b>CY</b>
<b>ITEM 765.</b>	<b>SEEDING</b>	<b>SY</b>

The work under these Items shall conform to the relevant provisions of Section 751, 765, 767, 770 and as supplemented below. Work includes the placement of approved loam borrow, lime, fertilizer, and seed to restore all disturbed grassed areas as authorized by the Engineer.

Loam Borrow shall meet with Material Specifications M1.07.0. Loam Borrow shall pass a 3/8" screen and laid in a minimum depth of 4" after compacted and shall be free of grass and other unsuitable materials. The placement of new loam borrow shall be as follows.

In new areas or areas of significant disturbance, loam borrow shall be placed with a minimum depth of 6 inches after compaction. In existing grass areas to remain, or where there is minimal disturbance to the surface, depressions shall be filled, and a top dressing of loam borrow shall be applied to a general depth of 1 inch after compaction. Prior to the application of the top dressing, the Contractor shall be required to mechanically aerate these areas by a means acceptable to the Engineer. Loam Borrow shall be used to fill depressions and shape the surface to provide for proper flow of drainage, as well as enhance the general appearance of these grassed areas. Areas adjacent to curbs and other such hard surfaces shall be pre-worked and tapered down 1 to 2 inches so as to allow the top dressing to end up flush with the hard surface.

Lime shall meet M6.01.0. Lime shall be applied at a rate of 75 to 100 lbs. per 1,000 square feet prior to seeding.

Fertilizer shall meet M6.02.0 and the applicable provisions of State and Federal laws and be furnished in containers plainly marked with the chemical analysis of the product. Fertilizer for general planting shall be slow release and shall be commercial grade 10-10-10, or sufficient to meet the recommendations for soil amendment. At least 40% of the nitrogen content shall be slow release, phosphorus shall be available phosphoric acid, and potassium shall be water-soluble potash.

Seed shall conform to the requirements of M6.03.0 Long Term Seed Mixes for Lawns and Slopes-Lawn Areas:

<u>Grass Type</u>	<u>Proportion</u>	<u>Germination Minimum</u>	<u>Purity Minimum</u>
<u>Lawn Grass Areas</u>			
Creeping Red and/or			
Chewings Fescue	55%	85%	95%
Kentucky Blue	30%	85%	90%
Perennial Rye	5%	90%	98%
Redtop	5%	85%	92%
Dutch White Clover	5%	85%	96%

The hydroseed mixture shall be applied at a rate sufficient to promote lush rapid growth of grass. Fertilizer in the hydro-seed mixture shall be applied at the rate of 30 lbs. per 1,000 square feet and seed in the hydro-seed mixture shall be applied at a rate of at least 120 lbs. per acre or 4 lbs. per 1,000 square feet.

The Contractor shall be responsible for watering the hydro seeded areas daily for a minimum of two weeks or until the grass has become established. The Town will provide water via a hydrant connection.

Payment under Item 751 shall be the Contract Unit Price bid per Cubic Yard, based on a 4 inch depth, which price shall be full compensation for preparing surfaces; excavation, fine grading and compaction of the subgrade, furnishing, placing, raking, shaping and compacting new loam borrow; and furnishing and applying lime.

Payment under Item 765 shall be the Contract Unit Price bid per Square Yard, which price shall be full compensation for preparing the loam surface, furnishing and applying hydro-seed, inclusive of fertilizer, as well as the maintenance of hydro-seeded areas as noted above.

Unless otherwise approved by the Engineer, surfaces disturbed outside the Limits of Work line shown for the Contractor's convenience, shall be restored as specified herein, at the Contractor's own expense.

**ITEM 756. NPDES STORMWATER POLLUTION PREVENTION PLAN LS**

This Item addresses the preparation and implementation of a Storm Water Pollution Prevention issued by the U.S. Environmental Protection Agency (EPA).

Pursuant to the Federal Clean Water Act, construction activities which disturb one acre or more are required to apply to the EPA for coverage under the NPDES General Permit for Storm Water Discharges from Construction Activities. On February 16, 2012 (77 FR 12286), EPA issued the final NPDES Construction General Permit (CGP) for construction activity. The Contractor shall be fully responsible for compliance with the CGP. Should a fine or penalty be assessed against it, or the City, as a result of a local, state, or federal enforcement action due to non-compliance with the CGP, the Contractor shall take full responsibility.

The NPDES CGP requires the submission of a Notice of Intent (NOI) to the EPA prior to the start of construction (defined as any activity which disturbs land, including clearing and grubbing). There is a 14 day review period commencing from the date on which EPA enters the Notice into their database. The Contractor is advised that, based on the review of the NOI, EPA may require additional information, including but not limited to, the submission of the Storm Water Pollution Prevention Plan (SWPPP) for review. Work may not commence on the project until final authorization has been granted by EPA. Any additional time required by EPA for review of submittals will not constitute a basis for claim of delay.

In addition, if the project discharges to an Outstanding Resource Water, vernal pool, or is within a coastal ACEC as identified by the Massachusetts Department of Environmental Protection (DEP), a separate notification to DEP is required. DEP may also require submission of the Storm Water Pollution Prevention Plan for review and approval. Filing fees associated with the notification to DEP and, if required, the SWPPP filing to DEP shall be paid by the Contractor.

The CGP also requires the preparation and implementation of a SWPPP in accordance with the afore-mentioned statutes and regulations. The Plan will include the CGP conditions and detailed descriptions of controls of erosion and sedimentation to be implemented during construction. It is the responsibility of the Contractor to prepare the SWPPP to meet the requirements of the most recently issued CGP. The Contractor shall submit the Plan to the Engineer for approval at least 4 weeks prior to any site activities. It is the responsibility of the Contractor to comply with the CGP conditions and the conditions of any state Wetlands Protection Act Order, Water Quality Certification, Corps of Engineers Section 404 Permit and other environmental permits applicable to the project and to include in the SWPPP the methods and means necessary to comply with applicable conditions of said permits (reference to Part 9.1.1 of the 2012 CGP).

It is the responsibility of the Contractor to complete the SWPPP in accordance with the EPA CGP, provide all information required, and obtain any and all certifications as required by the CGP. Any amendments to the SWPPP required by site conditions, schedule changes, revised work, construction methodologies, and the like are the responsibility of the Contractor. Amendments will require the approval of the Engineer prior to implementation.

Included in the CGP conditions is the requirement for inspection of all erosion controls and site conditions on a weekly basis as well as after each incidence of rainfall exceeding 0.25 inches in twenty-four hours. For multi-day storms, EPA requires that an inspection must be performed



during or after the first day of the event and after the end of the event. The CGP requires that inspections be performed by a qualified individual. MassDOT requires proof of completion of a 4 hour minimum sedimentation and erosion control training class current to the latest CGP. This individual can be, but not limited to, someone that is either a certified inspector, certified professional, or certified storm water inspector. The documentation shall be included as an appendix in the SWPPP. The Engineer must approve the contractor's inspector. This individual shall be on-site during construction to perform these inspections. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector. Written weekly inspection forms, storm event inspection forms, and Monthly Summary Reports must be completed and provided to the Engineer. Monthly Summary Reports must include a summary of construction activities undertaken during the reporting period, general site conditions, erosion control maintenance and corrective actions taken, the anticipated schedule of construction activities for the next reporting period, any SWPPP amendments, and representative photographs.

The Contractor is responsible for preparation of the Plan, all SWPPP certifications, inspections, reports and any and all corrective actions necessary to comply with the provisions of the CGP. Work associated with performance of inspections is not included under this Item. The Standard Specifications require adequate erosion control for the duration of the Contract. All Control measures must be properly selected, installed, and maintained in accordance with manufacturer specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately or is no longer adequate, it is the responsibility of the Contractor to replace or modify the control for site conditions at no additional cost to the Department. The Contractor must maintain all control measures and other protective measures in effective operating condition and shall consider replacement of erosion controls for each construction season.

This Item addresses acceptable completion of the SWPPP, any revisions/amendments required during construction, and preparation of monthly reports. In addition, any erosion controls beyond those specified in bid items elsewhere in this contract which are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods and prosecution of the work shall be considered incidental to this item.

The Contractor is advised The CGP provides specific requirements for temporary and final stabilization. This shall be incorporated into the project schedule. The permit defines specific deadline requirements for Initial Stabilization ("immediately", i.e., no later than the end of the next work day following the day when earth-disturbing activities have temporarily or permanently ceased) and for Complete Stabilization Activities (no later than 14 calendar days after the initiation of stabilization). Stabilization criteria for vegetative and non-vegetative measures are provided in the CGP.

The CGP requires the submission of a Notice of Termination (NOT) from all operators when final stabilization has been achieved, as well as removal and proper disposal of all construction materials, waste and waste handling devices, removal of all equipment and construction vehicles, removal of all temporary stormwater controls, etcetera. Approval of final stabilization by the Engineer and confirmation of submission of the NOT will be required prior to submission of the

Resident Engineer's Final Estimate. The permittee is required to use EPA's electronic NOI system or "eNOI system" to prepare and submit NOT. The electronic NOT form can be found at [www.epa.gov/npdes/stormwater/cgpenoi](http://www.epa.gov/npdes/stormwater/cgpenoi). If you are given approval by the EPA Regional Office to use a paper NOT, you must complete the form in Appendix K of the 2012 CGP.

## COMPENSATION

Payment for all work under this Item shall be made at the contract unit price, lump sum, which shall include all work detailed above, including plan preparation, required revisions, revisions/addenda during construction, monthly reports and filing fees.

Payment of 50% of the contract price shall be made upon acceptance of the Storm Water Pollution Prevention plan. Payment of 40% of the contract price shall be made in equal installments for implementation of the Stormwater Pollution Prevention plan. Payment of the final 10% of the contract price shall be paid upon satisfactory submissions of a Notice of Termination (NOT) when final stabilization has been achieved.

<b>ITEM 767.121</b>	<b>SEDIMENT CONTROL BARRIER</b>	<b>FOOT</b>
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The work under this item shall conform to the relevant provisions of Sections 751 and 767 of the Standard Specifications and Section 670 of the Standard Supplemental Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment Control Barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes are intended to be the primary sedimentation control barrier.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods;

- Straw tubes/wattles which shall be trenched
- Straw bales which shall be trenched

Additional barriers (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

Where specified or required by permits, silt fence shall be used in addition to compost filter tubes or straw bales and shall be incidental to the item.

## MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched and/or wedged as specified herein and shall be securely in contact with existing soil such that there is no flow beneath the barrier.

#### Compost Filter Tube

Compost material inside the filter tube shall meet M1.06.0, except for the following: no manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be a knitted mesh with 1/8 - 3/8" openings and made of 100% biodegradable materials (i.e., cotton, hemp or jute).

Compost filter tubes shall be a minimum of 12 inches in diameter installed. Tubes shall be placed, filled, and staked in place as required to ensure stability against water flows. All tubes shall be tamped, but not trenched, to ensure good contact with soil.

Where reinforcement is necessary, additional tubes shall be installed as shown on the plans.

#### Straw Bales

Straw bales shall conform to the requirements of Section M6.04.3 of the Standard Specifications and the following:

Bales should be a minimum size of 12 x 16 x 36 inches and shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another.

The bales shall be trenched and backfilled. The trench shall be excavated the width of the bale and the length of the proposed barrier to a depth of 4 inches. After the bales are staked the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

#### Straw Wattle

Straw wattle shall be a minimum of 12 inches in diameter. Straw filling shall conform to the requirements of Section M6.04.3, shall be encased in durable netting, and shall have a density of 3 lb/foot.

Straw wattle shall be trenched in 3 inches deep and staked according to the plans. The wattles shall be sufficiently secure on the upstream side to prevent water flowing underneath the wattle.

#### Silt Fence

Materials and Installation shall be per Section 670.40 of the Standard Supplemental Specifications and the following:

Silt fence shall be used when specified by Orders of Condition or other permitting.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be driven 16 inches into the ground on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

#### Stakes

Stakes for anchoring Compost Filter Tubes, Straw Wattles, and Straw Bales shall be as shown on the plans and shall be a minimum of 1x1 inch diameter x 4 feet hardwood stakes.

When used with Silt Fence, stakes for Compost Filter Tubes shall be driven 12 inches into the ground, Stakes for Straw Bales shall be driven 16 inches into the ground.

Stakes of other material of equivalent strength may be used if approved by the Engineer.

#### MAINTENANCE

Maintenance of Sediment Control Barriers shall be per Section 670.40 of the Standard Supplemental Specifications or per the Stormwater Pollution Prevention Plan (SWPPP).

The contractor shall inspect the sediment barrier after each rain event and as specified in relevant permits to ensure that they are working effectively and as intended. Contractor shall be responsible for ensuring that an effective barrier is in place for all phases of the contract.

Barriers that decompose naturally due to weatherization over time such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide water and sediment control, barrier does not necessarily require replacement.

#### DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed when construction work is complete and when site conditions are sufficiently stable to prevent surface erosion and after receiving permission to do so from the Engineer.

For all instances, all non-biodegradable material, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor regardless of site context.

For naturalized areas, biodegradable, natural fabric and material may be left in place to decompose on-site. Compost filter tubes may be left as they are with stakes removed. Straw bales shall be broken down and spread evenly. All nylon or non-biodegradable twine shall be removed along with silt fence. Wooden stakes may be left on site, placed neatly and discretely.

In urban, residential, and other locations where aesthetics is a concern, the following shall apply:

- Filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (similar to a soil amendment or mulch). Not more than a 2-inch depth shall be left on soil substrate.
- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall look neat and clean upon completion.

#### **METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Item 767.121 will be measured and paid for at the contract unit price per foot of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Silt fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, shall be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damaged by construction activities shall be repaired or replaced as directed by the Engineer at the Contractor's expense.

#### **ITEM 795.011 VIBURNUM – ARROWWOOD – BLUE MUFFIN 2-3 FOOT EACH**

The work under these items shall conform to the applicable requirements of Section 771, PLANTING TREES, SHRUBS AND GROUND COVER, of the latest edition of the Standard Special Provisions.

#### **GENERAL**

Plant locations shown on the plans are schematic. Final plant locations shall be approved by the Engineer prior to planting.

#### **WATERING**

Watering during the one-year warranty period shall be with equipment that meets the following requirements:

Irrigation shall be sufficient to provide one inch of water per week during the growing season. The volume of water shall be equivalent to approximately 625 gallons of water per 1000 square feet of planted area. Water for both trees and shrubs in plantings beds shall be applied to root balls and to surrounding soil such that all soil in the planting bed is moistened.

#### Watering

Watering shall be per the Supplement Standard Specification dated June 15, 2012:

All plants shall be watered during planting and all plants shall be watered at least twice each week during weeks where the average daily temperature exceeds 55 degrees (F) and when precipitation is less than 1 inch, as determined by local National Weather Service data. Watering shall be sufficient to provide moist soil to a depth of 6 inches, as determined by the Engineer. If soil is sufficiently moist, as determined by the Engineer, the required watering may be reduced.

Trees will require a minimum of 10 gallons of water each, and shrubs a minimum of 5 gallons per plant per watering.

Trees or shrubs planted after October 15 shall be thoroughly watered at the time of planting, after which subsequent watering will not be required until following season. The Contractor shall maintain a watering log for all plants installed on the project, indicating dates of watering and weather events. Log shall be submitted for final payment.

Log shall be per the form provided by MassDOT and shall be submitted to the Engineer.

<b>ITEM 804.3</b>	<b>3 INCH ELECTRICAL CONDUIT</b>	<b>FOOT</b>
<b><u>TYPE NM - PLASTIC - (UL)</u></b>		

Work under this Item shall conform to the relevant provisions of Section 801 of the Standard Specifications and the following:

The work shall include the furnishing and installation of 3-inch non-metallic conduit for traffic signal systems in accordance with the Plans and as directed by the Engineer. The conduit material shall be Schedule 80 polyvinyl chloride (PVC) plastic conduit. The conduit quantity may be increased or decreased by the Engineer depending upon actual conditions encountered as provided for in Section 4.06 of the Standard Specifications.

#### Conduit in Grass or in Planted Areas

Where new conduits are installed in grass and planted areas, no separate payment shall be made for the excavation, sand bedding, gravel backfill, including necessary compaction, or incidental materials, but all costs in connection therewith shall be included in the contract unit price for the work of this section.

### Conduit under Sidewalk, Median or Driveways

Where conduit is installed in a sidewalk, paved median or asphalt driveway areas, no separate payment shall be made for the saw-cutting, excavation, and sand bedding, gravel backfill, including necessary compaction, or incidental materials, but all costs in connection therewith shall be included in the contract unit price for the work of this section. Payment for cement concrete or asphalt pavement shall be paid under the respective item.

### Conduit Crossing Roadways

Trenches in existing bituminous concrete pavements not subject to full depth reconstruction shall be sawcut to an 18 inch width. The existing pavements shall be sawcut through their full depth and the pavement removed.

After conduit installation, the trench shall be backfilled with controlled density-fill (CDF). CDF shall be Type 2E and shall be specified in Section M4.08.0 of the Standard Specifications. The finished grade of the CDF shall be below existing pavement surface as shown on the construction details.

Where conduit crosses roadways, no separate payment shall be made for the saw-cutting of pavement, excavation, sand bedding, controlled density fill, or incidental materials, but all costs in connection therewith shall be included in the contract unit price for the work of this section.

Permanent patching required for roadway crossings will be paid under Item 451.

### **BASIS OF PAYMENT**

Payment under this Item shall be at the Contract Unit Price bid per Foot for furnishing and installing conduit, which price shall be full compensation for all necessary or incidental work, including saw-cutting, excavation, pull wires, warning strip, sand bedding, gravel borrow backfill, controlled density fill and compaction complete in place.

### **ITEM 815.1                      TRAFFIC CONTROL SIGNAL LOCATION 1                      LUMP SUM**

### **ITEM 816.02                      TRAFFIC SIGNAL RECONSTRUCTION LOCATION 2                      LUMP SUM**

The work to be performed under this item shall consists of furnishing and installing Traffic Signal Control Devices in accordance with the applicable portions of Section 800 of the Standard Specifications, the 2009 Manual on Uniform Traffic Control Devices (MUTCD), the MassDOT amendments to the MUTCD, applicable sections of the National Electrical Manufacturers Association (NEMA) Standard No. TS 2-2016, *Traffic Controller Assemblies with NTCIP Requirements*, the Advanced Transportation Controller (ATC) Standard (Version 5.2b) and supplemented by the following:

The work shall include furnishing and installing all, or part, of the following items: local traffic signal controller, cabinet and foundation with concrete pad; master controller system; signal posts and concrete foundations; vehicle signal heads; video detection system; pedestrian signal heads; accessible pedestrian pushbutton assemblies; software; all cable and wiring; wireless broadband radio; service connections; equipment grounding and bonding; and all other equipment, materials and incidental costs necessary to provide a complete, fully operational traffic control signal system as specific herein and as shown on the plans.

The locations included in this contract are the following:

- Location 1: Thacher Street (Route 123) at Rathbun-Willard Drive/Black Oak Drive
- Location 2: Thacher Street (Route 123) at County Street

Existing service connections will be maintained at all locations during construction. National Grid will furnish connection and power at the location shown on the Contract Drawings. National Grid will connect and disconnect power as required. No work shall be done in manholes or on power poles without a representative of National Grid being present. The Contractor will be responsible for coordinating the National Grid work.

It shall also be the Contractor's responsibility to pay all charges to National Grid for performing this work. No direct reimbursement will be made under this payment to the Contractor for payments made to National Grid, it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract unit prices bid.

A list of required major traffic signal system items is included on the plans. All equipment installed shall be listed on MassDOT's "Qualified Traffic Control Equipment List".

### **Shop Drawings**

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for signal supports, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Section 815.20 of the Massachusetts Standard Specifications. **Due to the shortage of equipment and the long lead time required for fabrication, Constructor shall collaborate with the City as soon as possible to expedite the shop drawing process and ordering of signal equipment.**

No traffic signal work shall commence by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer. Approval of these drawings will be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship conforming to the plans, standard specifications, and these special provisions.

The Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer. All materials shall be new, and certain components, specifically the controller unit and cabinet, shall be received fully assembled and



tested to ensure that the components work to the full capabilities identified in the standards specified above.

The Contractor shall request written approval from the Engineer before the placement of any concrete for foundations of mast arms, signal posts and cabinets.

The top of the concrete base for the control cabinet shall be 18 inches above grade. The top of all other foundations not in sidewalk or paved areas shall be a minimum of 2 inches above grade. The top of mast arm foundations in sidewalk areas shall be located flush with finish grade.

### **Flashing Operation**

Changes from automatic flashing to stop-and-go operation and from stop-and-go to automatic flashing operation shall occur as set forth in Sections 4D.28 through 4D.31 of the MUTCD.

### **Existing Installations**

The existing signal installations to be reconstructed under these items shall be maintained in operation throughout the construction period. The Contractor may use temporary supports for signal heads as necessary to allow for construction activities. The cost of temporary signals and supports as required shall be considered incidental to these Items.

Any temporary installation shall be in conformance with the MUTCD at all times. If an existing signal is to be turned off temporarily to allow controller switch over or rewiring, police details shall be used to control traffic at the intersection.

Once the new signal is in operation, unused items of the old signal shall be completely removed and stacked as directed by the Engineer in accordance with the contract documents. Old cable and unusable materials shall be disposed of by the Contractor.

### **Modifying Existing Traffic Signal Controller Cabinet Assemblies**

The Contractor shall modify the existing traffic signal controller cabinet assembly at Location 2, that is to remain, to accommodate the proposed controller timer units, malfunction management units, vehicle detection, wireless communications, communication cables, timings/coordination as shown on the plans.

The Contractor shall perform controller data base conversion at Location 2, implement proposed signal phasing and timing, and establish full communication with Location 1. This will involve documenting all data elements contained in the existing traffic signal controller and programming all the new controllers with the necessary data to support proposed signal operation.

## **Controller Unit and Cabinet**

The traffic controller unit supplied shall conform to NEMA Standard No. TS 2-2016 “Traffic Controller Assemblies with NTCIP Requirements - Version 03.07”, the Advanced Traffic Controller (ATC) Standard - latest published version. The control cabinet at Location 2 shall be retained. The controller shall utilize an interface conforming to Subsection 3.3 of the NEMA TS 2 Standard. The controller unit shall utilize an input/output interface conforming to the requirements of part of Paragraph 3.3.1 for all input/output functions with the Malfunction Management Unit (MMU) and Paragraph 3.3.5 for input/output functions with the Terminal Facilities (TF), video detection processors and auxiliary devices. The signal system shall have the capability to provide future Peer to Peer system operation and fully integrate an Adaptive Signal Control system.

The controller unit shall be a shelf mounted, keyboard-entry, menu-driven unit and conform to the Standard Specifications, with internal time base coordination, emergency preemption, and programmatic capability. The controller shall be complete with a modem card and physical connector, to support closed loop communication.

The local system intersection controller shall include all of the following internal functions:

- 1) Full software compatibly with the control and data protocol of the on-street master controller.
- 2) Local time based scheduler including automatic accommodation for daylight savings time.
- 3) Local time based coordination control.
- 4) Local preemption control with twelve programmable internal preemption sequences.
- 5) Process system and local intersection detector activity and accumulate samples of vehicle counts, occupancy, speed, stops, and delay.
- 6) Perform extensive failure evaluation of the controller, detectors, and communications.
- 7) Provide local control of remotely selected NEMA and special functions.
- 8) Controllers shall be capable of Adaptive Maximum green times. They shall operate as follows; after a phase maxes out twice in a row and on each successive max out thereafter, one step value will be added to the Adaptive Max until the value of the Dynamic Max is reached. Returning to Normal Max shall be achieved in the same fashion. After a phase gaps out twice in a row on each successive gap out thereafter one step value, and only one step value, will be subtracted from the Adaptive Max until the value of the Normal Max is reached.
- 9) Controllers shall have the capability to provide future Peer to Peer system operation and fully integrate Adaptive Signal Control system operation.

All controllers shall include a Linux engine board, and a 10 Base-T Ethernet port which is IP addressable to function in an Ethernet based system. All controllers shall also include a USB port.

To minimize training and simplify local programming, all local parameter access shall utilize prompting and English language displays, and all codes needed by the user, if any, shall be on

the front panel or on the display screen to avoid the need for memorization or the presence of a manual.

A master controller shall be installed at Location 2. Master controller shall maintain time-based coordination system-wide.

The Contractor shall include a red colored 10'± CAT5e cable in each cabinet to support communications between the controller unit and a laptop computer.

Controller cabinet foundations shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. Anchor bolts shall be internal to the cabinet.

The following requirements are applicable to Location 1 and are designed for effective use of a laptop computer in conjunction with traffic signal controllers. These requirements are also designed to permit all engineers, electricians and technicians (including those who are disabled but ambulatory) to work in the cabinet in a safe, effective and comfortable manner. To this extent, the following meets applicable ADA requirements.

1. Adjust the control cabinet height by use of a cabinet extender, adjust the placement of cabinet shelves, adjust the height of the cabinet foundation or provide any combination of these three items so that the top of the LCD or other visual display window of both the local controller and the master controller is no more than 48" above finished grade in front of the cabinet. The top of the cabinet door opening shall be at least 5'8" above finished grade. Any technical provision, plan detail, standard specification or standard drawing to the contrary shall not apply to the extent that it may conflict with this viewing height requirement.
2. Furnish and install one slide-out/slide-in shelf or swing-out/swing-in shelf appropriate for the size and load of a laptop computer. This moveable shelf shall support the bottom of the laptop computer at a height between 3'-4" and 3'-8" above finished grade in front of the cabinet.
3. Furnish and install a paved pad in front of the control cabinet. This pad shall be of cement concrete, built in accordance with the sidewalk specification applicable to this project, approximately level, approximately 1" above the surrounding unpaved surface, or at even grade with the adjacent surface if paved. This pad shall abut the front of the cabinet, project at least 1' to each side of the cabinet and at least 3' in front. No pad is required if the front of the cabinet immediately abuts an existing or proposed paved sidewalk or other paved surface.
4. Both the firmware and software version in each timer unit shall be the same throughout the project, and shall be the latest version available on the market. In addition, the contractor shall promptly furnish to the owner and install all upgraded versions of both firmware and software through the last day of the inspection period, guarantee period or warranty period, whichever date is later.

5. The contractor shall furnish one cable with each new timer unit to connect a controller timing mechanism to a laptop computer. This cable shall have a termination at one end to match the controller. It shall have a termination on the other end to match the type of serial port found on laptop computers, usually DB9. This cable shall be wired to provide serial RS232C communication between the controller and the computer.
6. Payment for the work described above shall be deemed to be incidental to and included in the prices bid for various items of traffic signal work, and no additional payment shall be made for the work described above.

### **System Master Controller**

The system shall consist of a digital microprocessor-based unit installed and housed in a traffic control cabinet at Location 2 as shown on the plans. The system master controller shall be capable of communicating with future off-site monitoring and control computer stations via a future dial-up modem and telephone line connection. The system master controller shall be capable of communicating with local traffic controllers at all other locations.

The system master controller shall be capable of implementing traffic responsive control, time base control, time of day control or remote control of operation for its particular system of traffic controllers.

The system master controller unit shall conform to all applicable portions of the Environmental and Operating Standards as described in the NEMA TS 2 Standard, Section 2. All DC inputs and outputs shall conform to NEMA TS 2 Standard, Section 13.

The system master controller shall have the capability of uploading system and timing data from a future remote monitoring and control computer and downloading the data to each local traffic controller unit.

Minimum available control parameters capabilities which can be transmitted between a remote computer and on-street master/local traffic controllers include the following:

- All Standard Timing functions
- All Time-base functions
- All Preemption functions
- All Master time of day (TOD) functions
- System Communications Parameters
- Local and Master Report functions including event/alarm and detector logging.

During either uploading or downloading operation, normal traffic control operations shall not be suspended. All data shall be continually accessible and displayed.

The system master controller shall provide the means for data transfer with local traffic controllers via an on-street closed loop system. Data rates shall be minimum 1,200 baud  $\pm$

0.01% asynchronous. Modulation shall be time division multiplier/frequency shift keying (TDM/FSK). The system master controller and local traffic controllers shall communicate via internal modems.

The front panel display of both the system master controller and local traffic controller units shall be capable of containing a real-time display of communications status showing transmit/receive information and logging of errors in data transmission.

Liquid crystal displays shall be utilized. The display shall have a back light for viewing at night. Incandescent indicator lights are not acceptable. As a minimum, the model number and software version shall be displayed.

A menu driven format shall be utilized. The menu format shall preclude the need for programming cards or tables. All data shall be entered utilizing the keyboard supplied on the system master controller.

The system master controller shall have the capability of implementing TOD (time of day, day of week, week of year) control using an internal clock that utilizes the AC line frequency as a base.

Future cycle, split and offset selection shall be individually and independently controlled by the on-street master's TOD programming.

The cycle changes shall be user programmable as to synch referencing modes. The beginning of coordinated cycle shall start either at a programmable daily time reference or at the end of the current complete cycle. Synch referencing mode shall be user programmable.

The system master controller shall provide capabilities for a user specified security code entry before any data may be altered. In order to view any parameter, security code entry shall not be required. Security access shall be automatically rescinded in a set period of time after either access was gained or the last parameter change was entered when in use. The system master controller shall have the ability via keyboard to disable security code requirements, allowing for perpetual access. A specified security code will not be required for this project.

The system master supplied shall be of the same manufacturer as the local traffic controllers supplied under this Contract. The system master shall have all harnesses properly terminated on the back panel.

### **Bus Interface Units**

The Bus Interface Unit (BIU) shall comply with Section 8 of the NEMA TS 2 Standard. The BIU shall be fully interchangeable with any other manufacturer's unit and interchangeable in a NEMA TS 2 Type 1 cabinet assembly.

The BIU shall perform the interface function between Port 1 at the controller unit, the malfunction management unit, loop detector rack assembly, and the backpanel terminal and facilities.

As a minimum, two LED indicators shall be provided on the BIU front panel. One indicator shall serve a dual use; as a power on indication and as a diagnostic indicator for proper operation of the device. The second indicator shall serve as a transmit indicator illuminating each time data is transmitted.

NOTE WELL: The contractor shall supply one additional spare BIU in each controller cabinet.

### **TS2 Cabinet Power Supply**

A separate power supply shall be supplied and installed in each of the TS 2 cabinets. The unit shall be AC line powered and provide regulated DC power, unregulated AC power, a line frequency reference for the bus interface units, load switches, and other auxiliary cabinet equipment, as required. As a minimum, the power supply shall meet all requirements of Section 5.3.5 of the NEMA TS 2 Standard.

The power supply shall be either shelf mounted or wall mounted utilizing key hole slots for ease of replacement or installed as part of the rack assembly.

The unit shall contain four LED indicators on the front panel to indicate the four outputs; + 12 VDC +/- 1 VDC @ 2.0 amps, + 24 VDC +/- 2 VDC @ 2.0 amps, 12 VAC @ 250 milliamps, and 60 Hz line frequency reference. A test point terminal shall also be located on the units front panel for + 24VDC and logic ground testing.

### **Malfunction Management Unit**

The malfunction management unit (MMU) shall comply with Section 4 of the NEMA TS 2 standard. The MMU shall be capable of operating as either a Type 16 with 16 channels (8 vehicle, 4 pedestrian, 4 overlap) or a Type 12 with 12 channels (8 vehicle, 4 overlap). The MMU's supplied shall be configured to operate as Type 16 units. The MMU shall be capable of supporting flashing yellow arrow operation.

The MMU's in either the Type 16 or Type 12 configuration shall be capable of operating in a NEMA TS 2 Type 1 cabinet or a NEMA TS 1 cabinet without loss of functionality.

### **Load Switches**

Load switches shall comply with Subsection 6.2 of the NEMA TS 2 Standard. All load switches shall utilize optically isolated encapsulated modular solid-state relays. Discrete components on circuit boards are not acceptable.

Load switch indicator lights shall be LED-type and wired on the input side of the device.

Note: The controller cabinet assembly shall be initially supplied with a full complement of load switches to accommodate each available position of the backpanel.

### **Flasher**

Flashers shall comply with Subsection 6.3 of the NEMA TS 2 Standard and be equipped with two output indicator lights which will show flashing power out to the cabinet assembly.

### **Flash Transfer Relays**

Flash transfer relays shall comply with Subsection 6.4 of the NEMA TS 2 Standard.

The field electrical loading for flash operation shall be wired through the transfer relays such that the load on the 2-circuit flasher is as balanced as possible within the limitations of the signal phasing.

Note: The controller cabinet assembly shall be initially supplied with a full complement of flash transfer relays to accommodate each available position of the backpanel.

### **Testing of Grounding System**

The Contractor shall perform testing of the equipment grounding system in the presence of the Engineer in accordance with the Standard Specifications. A ground rod shall be installed in each controller cabinet.

### **Video Detection System**

A video detection system shall be furnished, installed, and configured at each location to detect the presence of vehicles in the designated detection zones as shown on the plans. Video cameras and 6-foot extension brackets, image processors, communications interface, and all ancillary equipment/mounting hardware, software, and programming, and training will be furnished as a complete integrated system compatible with all supplied equipment at the intersection.

This specification sets forth the minimum requirements for a system that detects vehicles on a roadway using only video images of vehicle traffic.

#### *System Hardware*

The video detection system shall consist of up to four video cameras with extensions brackets, a video detection processor (VDP) which mounts on a standard cabinet shelf, a 9 inch (min.) color monitor and a pointing device. If more than four cameras are required at a location, an additional VDP shall be provided.

#### *System Software*

The system shall include software that detects vehicles and bicycles in multiple lanes using only the video image. Detection zones shall be defined using only an on-board video menu and a pointing device to place the zones on a video image. Up to 24 detection zones per camera shall be available. A separate computer shall not be required to program the detection zones.

#### *Functional Capabilities*

The VDP shall process video from up to four camera sources, as specified. The video shall be input to the VDP from the camera sensors via Ethernet cables plugged into the front of the Central Control Unit. The interface connectors shall be RJ-45 type.

The VDP shall detect the presence of vehicles in up to 24 detection zones per camera. A detection zone shall be approximately the width and length of one car.

Detection zones shall be programmed via an on-board menu displayed on a video monitor and a pointing device connected to the VDP. The menu shall facilitate placement of detection zones and setting of zone parameters or to view system parameters. A separate computer shall not be required for programming detection zones or to view system operation.

The VDP shall store at least five different detection zone patterns. The VDP can switch to any one of the three different detection patterns within 1 second of user request via menu selection with the pointing device.

The VDP shall detect vehicles in real time as they travel across each detector zone.

The VDP shall accept new detector patterns from an external computer through the Ethernet port when the external computer uses the correct communications protocol for downloading detector patterns. A Windows™-based software designed for local or remote connection and providing video capture, real-time detection indication and detection zone modification capability shall be provided with the system.

The VDP shall send its detection patterns to an external computer through the Ethernet port when requested when the external computer uses the appropriate communications protocol for uploading detector patterns.

The camera system shall be able to transmit a video signal, with minimal signal degradation, up to 1000 feet under ideal conditions.

The associated VDP shall default to a safe condition, such as a constant call on each active detection channel, in the event of loss of video signal.

The system shall be capable of automatically detecting a low-visibility condition such as fog and respond by placing all defined detection zones in a constant call mode. A user-selected output shall be active during the low-visibility condition that can be used to modify the controller operation if connected to the appropriate controller input modifier(s). The system shall automatically revert to normal detection mode when the low-visibility condition no longer exists.

#### *Vehicle Detection*

A minimum of 24 detection zones shall be supported and each detection zone shall be user definable in size and shape to suit the site and the desired vehicle detection region.



A single detection zone shall be able to replace multiple inductive loops and the detection zones shall be OR'ed as the default or may be AND'ed together to indicate vehicle presence on a single phase of traffic movement.

Placement of detection zones shall be done by using only a pointing device, and a graphical interface built into the VDP and displayed on a video monitor, to draw the detection zones on the video image from the video camera. No separate computer shall be required to program the detection zones.

A minimum of five detection zone patterns shall be saved within the VDP memory. The VDP's memory shall be non-volatile to prevent data loss during power outages. The VDP shall continue to operate (e.g. detect vehicles) using the existing zone configurations even when the operator is defining/modifying a zone pattern. The new zone configuration shall not go into effect until the configuration is saved by the operator.

The selection of the detection zone pattern for current use shall be done through a menu or remote computer via Ethernet port. It shall be possible to activate a detection zone pattern for a camera from DVP memory and have that detection zone pattern displayed within 1 second of activation.

When a vehicle is detected crossing a detection zone, the corners of the detection zone will flash on the video overlay display screen to confirm the detection of the vehicle.

Detection shall be at least 98% accurate in good weather conditions and at least 96% accurate under adverse weather conditions (rain, snow, or fog). Detection accuracy is dependent upon site geometry; camera placement, camera quality and detection zone location, and these accuracy levels do not include allowances for occlusion or poor video due to camera location or quality.

Detector placement shall not be more distant from the camera than a distance of ten times the mounting height of the camera.

The VDP shall provide up to 64 channels of vehicle presence detection through a standard SDLC connector.

The VDP shall provide dynamic zone reconfiguration (DZR) to enable normal detector operation of existing channels except the one where a zone is being added or modified during the setup process. The VDP shall output a constant call on any detection channel corresponding to a zone being modified.

Detection zone setup shall not require site specific information such as latitude, longitude, date and time to be entered into the system.

The VDP shall output a constant call for each enabled detector output channel if a loss of video signal occurs. The VDP shall output a constant call during the background learning period.

Detection zone outputs shall be configurable to allow the selection of presence, pulse, extend, and delay outputs. Timing parameters of pulse, extend, and delay outputs shall be user definable between 0.1 to 25.0 seconds.

Up to six detection zones shall be capable to count the number of vehicles detected. The count value shall be internally stored for later retrieval through the Ethernet port. The data collection interval shall be user definable in periods of 5, 15, 30 or 60 minutes.

#### *VDP Hardware*

The VDP shall be specifically designed to mount on a standard TS-1, TS-2, 170 type detector rack.

The VDP shall operate in a temperature range from -34°C to +74°C and a humidity range from 0%RH to 95%RH, non-condensing.

The VDP shall be powered by 12 or 24 VDC. These modules shall automatically compensate for the different input voltages.

The VDP shall utilize flash memory technology to enable the loading of modified or enhanced software through the Ethernet port without modifying the VDP hardware.

The front of the VDP shall include detection indications, such as LED's, for each channel of detection that display detector outputs in real time when the system is operational.

The VDP shall be a full-function BIU and integrated video detection communication unit. The VDS shall provide outputs to the controller of vehicle calls from video processors that reside within the shelf-mounted unit.

The VDS shall have the capability of monitoring phase information and passing that information and other system data such as "time" from the controller to video detection processor modules. The VDP shall also accept data from video processor modules and relay the information to the controller. The unit shall provide a maximum of 64 detector outputs to the controller via the SDLC interface.

#### *Video Detection Camera*

The video cameras used for traffic detection shall be furnished by the VDP supplier and shall be qualified by the supplier to ensure proper system operation.

The VDS camera sensor shall utilize a single shielded CAT5E or CAT6 cable for power and video. Cable termination at the camera shall not require crimping or special tools. The cable termination shall only require a standard wire stripper and a screw driver. No connectors (e.g. BNC) shall be allowed.

The camera sensor shall allow the user to set the focus and field of view via the VDS software. Camera sensor control from the controller cabinet shall communicate over a single Cat-5e or CAT6 cable. No additional wires shall be required.

The camera shall produce a useable video image of the features of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.003 lux to 10,000 lux.

The camera electronics shall include automatic gain control (AGC) to produce a satisfactory image at night for the VDS algorithms.

The imager luminance signal to noise ratio (S/N) shall be more than 50 dB with the automatic gain control (AGC) disabled.

The imager shall employ three-dimensional dynamic noise reduction (3D-DNR) to remove unwanted image noise.

The camera imager shall employ wide dynamic range (WDR) technology to compensate for wide dynamic outdoor lighting conditions. The dynamic range shall be greater than 100 dB.

The camera shall be digital signal processor (DSP) based and shall use a CCD sensing element and shall output color video with resolution of not less than 540 TV lines. The color CCD imager shall have a minimum effective area of 811(h) x 508(v) pixels.

The camera shall include an electronic shutter control based upon average scene luminance and shall be equipped with an auto-iris lens that operates in tandem with the electronic shutter. The electronic shutter shall operate between the range of 1/60th to 1/90,000th second.

The camera shall utilize automatic white balance.

The camera shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier.

The horizontal field of view shall be adjustable from 4.5 to 48 degrees. This camera configuration may be used for the majority of detection approaches in order to minimize the setup time and spares required by the user. The lens shall be a 12x zoom lens with a focal length of 3.5mm to 35mm.

The lens shall also have an auto-focus feature with a manual override to facilitate ease of setup.

The camera shall incorporate the use of preset positioning that store zoom and focus positioning information. The camera shall have the capability to recall the previously stored preset upon application of power.

The camera shall be housed in a weather-tight sealed enclosure. The housing shall allow the camera to be rotated to allow proper alignment between the camera and the traveled road surface.

The camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera's field of view. The camera enclosure with sunshield shall be less than 3.5" (89mm) diameter, less than 5.25" (133mm) long, and shall weigh less than 2.5 pounds (1.14kg) when the camera and lens are mounted inside the enclosure.

The enclosure shall be designed so that the pan, tilt and rotation of the camera assembly can be accomplished independently without affecting the other settings.

#### *Camera Lens*

The camera enclosure shall include a proportionally controlled Indium Tin Oxide (ITO) lens coating for the heating element of the front glass that maximizes heat transfer to the lens. The output power of the heater shall vary with temperature, to assure proper operation of the lens functions at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure. The transparent coating shall not impact the visual acuity and shall be optically clear.

The glass face on the front of the enclosure shall have an anti-reflective coating to minimize light and image reflections.

The glass face on the front of the enclosure will include a Titanium Dioxide self cleaning coating. When mounted outdoors in the enclosure, the camera shall operate satisfactorily in a temperature range from -30° F to +140° F (-34 °C to +60 °C) and a humidity range from 0% RH to 100% RH. Measurement of satisfactory video shall be based upon VDP system operation.

The camera shall be powered by 48VDC. Power consumption shall be 5 watts typical and 16 watts or less under worst conditions.

Recommended camera placement height shall be 30 feet above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the camera should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 300 feet for reliable detection (height to distance ratio of 1:10). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

The video signal shall be fully isolated from the camera enclosure.

Cable terminations at the camera for video and power shall not require crimping tools.

A weather-proof protective cover shall be provided shall be provided to protect all terminations at the camera. No special tooling shall be required to remove or install the protective cap.

The camera assembly shall include a temperature sensor. The sensor will be polled by the VDS every minute and will supply the current air temperature. The VDS software will display this information on the On-Screen Display for each camera.

### *Multi-sensor Detection System*

The Multi-Sensor Detection System (MSDS) sensor shall be supplied by the video detection system manufacturer and consist of two components; a camera sensor and a radar sensor.

The MSDS sensor shall utilize a single shielded CAT5E or CAT6 cable for power, communications and video. Cable termination at the camera shall not require crimping or special tools.

An optional RJ45 direct connector shall be made available if a user chooses to connect the sensor cable with RJ45 connections at the sensor.

### *MSDS Camera Sensor*

The camera sensor shall allow the user to set the focus and field of view of the camera imager via the MSDS software. Sensor control from the controller cabinet shall communicate over a single Cat-5e or CAT6 cable. No additional wires shall be required.

The camera imager shall produce a useable video image of the features of vehicles under all roadway lighting conditions, regardless of time of day. The minimum range of scene luminance over which the camera shall produce a useable video image shall be the minimum range from nighttime to daytime, but not less than the range 0.003 lux to 10,000 lux.

The camera imager electronics shall include automatic gain control (AGC) to produce a satisfactory image at night for the MSDS algorithms.

The camera imager luminance signal to noise ratio (S/N) shall be more than 50 dB with the automatic gain control (AGC) disabled.

The camera imager shall employ three-dimensional dynamic noise reduction (3D-DNR) to remove unwanted image noise.

The camera imager shall employ wide dynamic range (WDR) technology to compensate for wide dynamic outdoor lighting conditions. The dynamic range shall be greater than 100 dB.

The camera imager shall be digital signal processor (DSP) based and shall use a CCD sensing element and shall output color video with resolution of not less than 540 TV lines. The color CCD imager shall have a minimum effective area of 811(h) x 508(v) pixels.

The camera imager shall include an electronic shutter control based upon average scene luminance and shall be equipped with an auto-iris lens that operates in tandem with the

electronic shutter. The electronic shutter shall operate between the range of 1/60th to 1/90,000th second.

The camera imager shall utilize automatic white balance.

The camera imager shall include a variable focal length lens with variable focus that can be adjusted, without opening up the camera housing, to suit the site geometry by means of a portable interface device designed for that purpose and manufactured by the detection system supplier.

The horizontal field of view shall be adjustable from 4.5 to 48 degrees. The sensor camera lens shall be a 12x zoom lens with a focal length of 3.5mm to 35mm. The sensor lens should yield a rectilinear image.

The sensor camera lens shall also have an auto-focus feature with a manual override to facilitate ease of setup.

The sensor shall incorporate the use of preset positioning that store zoom and focus positioning information. The sensor shall have the capability to recall the previously stored preset upon application of power.

The camera imager shall be housed in a weather-tight sealed enclosure. The housing shall allow the sensor camera to be rotated to allow proper alignment between the sensor camera and the traveled road surface.

The sensor camera enclosure shall be equipped with a sunshield. The sunshield shall include a provision for water diversion to prevent water from flowing in the camera sensor's field of view. The camera sensor enclosure with sunshield shall be less than 3.5" (89mm) diameter, less than 5.25" (133mm) long, and shall weigh less than 2.5 pounds (1.14kg) when the camera and lens are mounted inside the enclosure.

The enclosure shall be designed so that the pan, tilt and rotation of the camera sensor assembly can be accomplished independently without affecting the other settings.

#### *Camera Lens*

The camera sensor enclosure shall include a proportionally controlled Indium Tin Oxide (ITO) lens coating for the heating element of the front glass that maximizes heat transfer to the lens. The output power of the heater shall vary with temperature, to assure proper operation of the lens functions at low temperatures and prevent moisture condensation on the optical faceplate of the enclosure. The transparent coating shall not impact the visual acuity and shall be optically clear. The glass face on the front of the camera sensor enclosure shall have an anti-reflective coating to minimize light and image reflections.

When mounted outdoors in the enclosure, the camera sensor shall operate satisfactorily in a temperature range from -30° F to +140° F (-34 °C to +60 °C) and a humidity range from 0% RH to 100% RH. Measurement of satisfactory video shall be based upon DP system operation.

### *Radar Sensor*

The radar sensor shall operate in the 24 GHz frequency band and shall operate on 1 of 7 available enumerated channels that is user selectable.

The radar detection range shall be over 500 feet (152 meters) minimum, +/- 5%.

The radar sensor shall be able to track up to 64 independent objects simultaneously.

Object speed detection shall be within a range of 0 to 150 miles per hour +/- 1.0 miles per hour (240 km per hour  $\pm$  1.5 km per hour).

The radar sensor shall be able to detect vehicles in 1 to 6 traffic lanes.

The radar sensor shall be housed in a weather-tight sealed enclosure conforming to IP-67 specifications. The housing shall allow the radar to be adjusted to allow proper alignment between the sensor and the traveled road surface.

When mounted outdoors in the enclosure, the radar shall operate in a temperature range from -30 oF to +165 oF (-34 °C to +74 °C) and a humidity range from 0% RH to 100% RH.

The radar sensor shall communicate with the sensor data combiner.

The radar sensor shall acquire its power from the sensor data combiner.

Both camera imager and radar sensors shall be housed in an overall, single enclosure assembly.

The overall size of the multi-sensor enclosure shall not exceed 14 inches x 15 inches x 17 inches (355mm x 380mm x 430mm).

The overall weight of the multi-sensor unit shall not exceed 11 pounds (5kg).

The effective projected area (EPA) shall not exceed 2.0 square feet (0.6 square meters).

The maximum power consumption for the multi-sensor assembly shall be less than 10 watts typical, 20 watts peak.

Recommended sensor placement height shall be 33 feet (or 10 meters) above the roadway, and over the traveled way on which vehicles are to be detected. For optimum detection the MSDS sensor should be centered above the traveled roadway. The camera shall view approaching vehicles at a distance not to exceed 350 feet (107 meters) for reliable detection (height to

distance ratio of 10:100). Camera placement and field of view (FOV) shall be unobstructed and as noted in the installation documentation provided by the supplier.

The video signal shall be fully isolated from the sensor enclosure.

### *Sensor Data Combiner*

A sensor data combiner that combines sensor information from both video and radar sensors shall be employed.

The sensor data combiner shall supply primary power to each sensor unit.

The sensor data combiner shall facilitate digital communications between the sensor data combiner and each of the sensor units.

The sensor data combiner shall get its primary power from DC power sourced from the CCU using outdoor rated, shielded Cat5E or Cat6 cable.

The sensor data combiner shall communicate with the detection processor using a single outdoor rated, shielded Cat5E or Cat 6 cable. Both video imaging and radar data shall use the single cable.

The sensor data signal shall be fully isolated from the mechanical enclosure

Cable terminations at the sensor data combiner shall not require crimping tools.

The sensor data combiner shall be housed in a weather-tight sealed enclosure conforming to IP-67 specifications.

A weather-proof protective cover shall be provided shall be provided to protect all terminations at the sensor.

The sensor assembly shall include a temperature sensor. The sensor will be polled by the MSDS every minute and will supply the current air temperature. The MSDS software will display this information on the On-Screen Display for each sensor.

### *Installation*

The cable to be used between the camera and the CCU in the traffic cabinet shall be Cat-5e, shielded, direct burial. This cable shall be suitable for installation in conduit or overhead with appropriate span wire. Shielded RJ-45 pass-through style connectors shall be used. The Cat-5e cable, RJ-45 connector, stripping and crimping tool shall be approved by the supplier of the video detection system, and the manufacturer's instructions must be followed to ensure proper connection.

### *Limited Warranty*



The supplier shall provide a limited two-year warranty on the video detection system. See suppliers standard warranty included in the Terms and Conditions of Sale documentation.

During the warranty period, technical support shall be available from the supplier via telephone within 4 hours of the time a call is made by a user, and this support shall be available from factory-certified personnel or factory-certified installers.

During the warranty period, updates to VDP software shall be available from the supplier without charge.

### *Maintenance and Support*

The supplier shall maintain an adequate inventory of parts to support maintenance and repair of the video detection system. These parts shall be available for delivery within 30 days of placement of an acceptable order at the supplier's then current pricing and terms of sale for said parts.

The supplier shall maintain an ongoing program of technical support for the video detection system. This technical support shall be available via telephone, or via conditions, regardless of time of day.

A 9" (min.) color monitor and USB mouse shall be supplied in cabinets with video detection system.

### **Software**

All computer system, controller, conflict monitor, and amplifier software shall be supplied with the latest available revision. Any software upgrades released by the manufacturer shall be supplied at no charge to the owner for a period of five years after acceptance of the work.

### **Data Base Programming**

Each programmable local hardware component (controller, malfunction management unit, and detector amplifier) shall be initially programmed by the Contractor based on information contained on the plans. Three (3) sets of hard copy programming per device shall be supplied and stored in each controller cabinet.

### **Labels**

All time settings, switches, harnesses, relays, terminals, and fuses shall be clearly and permanently labeled.

## **Surge Suppression for Traffic Signal Equipment**

Wherever electronic traffic signal equipment is located (cabinets, cameras, etc.), each input & output should be surge protected except traffic signal outputs. Signal outputs from load switches do not need surge suppression since the load switches act as surge suppressors.

The surge protector must be electrically connected to the nearest grounded metal structure or nearest ground rod.

Surge protection for power service shall conform to the current NEMA TS-2 standard except surge capacity shall be 80 kA. The product complies when a lab report from an independent test laboratory stating the product passes the current NEMA TS-2(5.4.2.4) specification (with the additional surge capacity of 80 kA) is submitted with the shop drawings.

Surge protection for all video, loop, pedestrian button, and pre-emption connections should have peak surge current protection of at least 10K amperes with a response time of less than 5 nanoseconds. The product complies when a lab report from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.

Units should be unconditionally warrantied for at least 10 years.

## **Mast Arm Structures**

Mast arm structures shall be galvanized steel and shall conform to the provisions of M8.18.1. Mast arm structures shall be fabricated by the suppliers approved by MassDOT. Mast arm structures shall be monolever type. All signal heads and signs on the mast arms shall be fixed mounted. Shoe type bases shall be used.

Shop drawings and calculations shall be submitted for the mast arm structure. All shop drawings and calculations shall be stamped by a Professional Engineer registered in Massachusetts. Acceptance of mast arm poles will be contingent upon review and approval of shop drawings for all mast arm poles.

## **Mast Arm Foundations**

The Contractor's attention is drawn to the fact that core footings shall be provided for mast arm foundations. The Contractor shall provide and include in his lump sum bid price a drive sample boring with a rock core at the location of each foundation for each proposed mast arm shown on the plans. Each boring shall be taken to a depth of 15 feet, as a drive sample boring, unless rock is encountered above this depth, in which case, the boring shall continue as a core boring for 5 feet into rock. Borings and boring reports shall conform to the relevant provisions of Sections 190.61, 190.63 and 801.62 of the Standard Specifications. Boring reports shall indicate the ground water level observed and where the boring was taken. A 1'=20' scale plan shall be provided to the Engineer indicating the location of each boring. The Contractor shall notify the Engineer at least five working days in advance of the time he intends to take the borings. The Boring Contractor shall be subject to the approval of the Engineer. Upon receipt of the boring

reports, shop drawings, and the design calculations for the mast arm structures, Engineer will select the appropriate foundation for 130 mph wind zone based on the soil type as shown in the 2015 Overhead Signal Structure & Foundation Standard Drawings. Foundation shall be as shown in the Standard Drawings.

For the purpose of bidding, the Contractor may assume Wet Sand (Loose) soil type. Soil type will be determined by the Engineer before foundation can be constructed.

The lower portions of all foundations shall be placed directly against undisturbed earth. No forms or reinforcing for foundations shall be set nor shall concrete be placed until the excavation has been inspected by the Engineer and his approval to proceed has been given.

The top of all foundations in sidewalk areas shall be located flush with finish grade. The top of each mast arm foundation shall not be exposed in the sidewalk.

### **Pedestrian Signal Heads**

All pedestrian signal heads shall be mounted so that there is a minimum of 24 inches between any part of the housing or visor and the outer face of the curb. All pedestrian signal heads shall be aluminum, painted yellow.

Pedestrian signals shall be an approved single section 16 inch Light Emitting Diode (LED) type pedestrian signal head capable of displaying international symbols ("Hand/Person Walking" indications) as per the MUTCD with a countdown display.

### **Backplates**

Backplates shall be aluminum non-louvered with a 5 inch border width and a 3 inch yellow retroreflective border. Only backplates that are listed in the latest MassDOT "Qualified Traffic Control Equipment List" will be used on this project.

### **Posts and Bases**

All traffic signal posts shall be galvanized steel, painted yellow. Bases shall be of the octagonal pedestal type.

### **Vehicle Signal Heads**

All proposed vehicle signal heads shall be aluminum and painted yellow. When, in judgment of the Engineer, the visibility of existing or proposed signal faces will be obstructed by trees and other vegetation, the contractor shall clear the obstructions for proper sight distance. Any clearing necessary shall be done within the State, County, or Town layout, as directed by the Engineer.

### **LED Vehicle and Pedestrian Signal Modules**

All signal and pedestrian displays shall be equipped with LED signal modules. All red, amber, green, and pedestrian signal housings with the exception of optically programmed and fiber optic housings and shall conform to the following where applicable:

- ITE's Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Arrow Traffic Signal Supplement, Dated July 1, 2007
- ITE's Vehicle Traffic Control Signal Heads – Light Emitting Diode (LED) Circular Signal Supplement, Dated June 27, 2005.
- ITE's Pedestrian and Countdown Signal Modules Compliant to PTCSI - Part 2 Light Emitting Diode (LED), Dated, February 2011
- On the MassDOT Traffic Signal Approved Equipment List

For an LED module to be installed on this project, the LED module shall have approval from the MassDOT Traffic Control Products Approved Equipment Committee and be included on the Traffic Control Products List prior to the date of this proposal

To prevent the LED module warranty from being voided, the connecting leads on the module shall not be cut. The original LED module leads shall be connected to the signal head terminal block as continuous wire without splices.

The LED signal module will be replaced or repaired by the manufacturer if it exhibits one of the following:

- A failure due to workmanship or material defects within the first 60 months of field operation.
- A greater than 40 percent light output degradation or a fall below the minimum intensity levels (as defined by the latest ITE performance specifications) within the first 36 months of field operation

### **Accessible Pedestrian Pushbutton**

The pedestrian accessible pushbutton shall provide valuable information and cues via both a vibrating arrow button and audible sounds making the intersection accessible for all pedestrians. Informational messages shall be utilized at all pedestrian pushbutton locations. The messages shall conform to the requirements of Section 4E of the MUTCD. The speech walk message at each intersection with an exclusive pedestrian phase shall state "Walk sign is on for all crossings." The speech walk message at locations with concurrent phasing shall identify the street crossing with the walk indication, e.g. "Walk sign is on to cross Thatcher Street."

Pedestrian pushbuttons shall be located as close as practicable to the sidewalk curb ramp serving the controlled crossing and shall permit operation from a clear ground space. Pushbuttons shall be located according to the plans and in conformance with Fig 4E-4 of the 2009 MUTCD, with the arrow pointed parallel to the crosswalk being controlled. If two crosswalks, oriented in different directions, end at or near the same location, the positioning of pedestrian pushbuttons and/or legends on the pedestrian pushbutton signs shall clearly indicate which crosswalk signal is actuated by each pedestrian pushbutton. The 9"x15" standard sign (R10-3f) shall be integral to the pushbutton assembly.

All sounds shall emanate from the pushbutton unit via a weather-proof speaker that is protected by a vandal resistant screen. The volume of the sounds shall be 5 dB above ambient background sounds to a maximum of 100 dB. The accessible pedestrian pushbutton shall provide the following operating functions:

- Audible Locator tone, tells the pedestrians that the intersection is equipped with accessible pedestrians pushbutton and where it is.
- Acknowledge tone, tells the pedestrians that they have placed the call.
- Informational message, tells the pedestrians about the crossing.
- Walk Cycle message, tells the pedestrians when the Walk Sign is on. Each board has three walk cycle messages; Chirp, Cuckoo, or Custom message.
- Visual: A red LED is lit when the pedestrians has placed a call.
- Tactile: The directional vibro-tactile arrow becomes active with the Walk Sign.

The accessible pedestrian pushbutton shall be installed at a maximum of 42 inches above the finished sidewalk elevation, the pushbutton shall be raised from or flush with their housings and shall be a minimum of 2 inches in the smallest direction. The force required to activate the controls shall be no greater than 5 pounds.

The system shall also satisfy the following design compliance criteria and additional functional requirements:

#### *Design Compliance*

1. The System shall meet the functionality requirements of MUTCD 2009-4E.
2. The System shall meet NEMA TS 2 Section 2.1 Temperature & Humidity (salt-fog) requirements.
3. The System shall meet NEMA TS 2 Section 2.1 Transient Voltage Protection requirements.
4. The System shall meet NEMA TS 2 Section 2.1 Mechanical Shock and Vibration requirements.

#### *Functional Requirements*

1. The System shall be able to be set to vibrate a tactile arrow button during the WALK interval following a button push and/or every time the walk comes up.
2. The System shall have the field-selectable function known as “Locating Tone”. This means that during the FLASHING DON’T WALK and the DON’T WALK intervals, the system shall provide a locating tone that emanates from the Pedestrian Push Button Station.
3. The System shall have the field selectable function known as “Informational Message”. This means that a custom message giving the location of the street to cross and the intersection (or other information) can be vocalized.
4. The System shall provide a “Wait” message that is triggered once the pushbutton is activated.
5. The System shall have standard “Travel Direction” options that can be selected at the time of installation.

6. The System shall have at least four field selectable WALK sound options including a cuckoo, a chirp, an MUTCD rapid tick or user-defined custom voice message.
7. The System shall provide three pedestrian clearance sound choices.
8. “Locator tone”, “Walk” and “Pedestrian Clearance” audible features shall have independent assignable minimum and maximum volume limits.
9. The system shall utilize an internal ambient-sound sensing microphone located within the pedestrian pushbutton (PPB) station in a non-visible, environmentally protected housing.
10. All sound levels shall be adjusted automatically via the internal PPB audible feedback microphone, in response to ambient noise measurements over a 60dB range with additional software-based volume control to adjust the sound level at ambient, 5dB or 10dB over ambient, to a maximum of 100dB.
11. The system shall have an independent ambient adjustment setting for the locator tone that allows the locate tone volume to be set to play below the ambient noise level.
12. The APS shall utilize high quality digital audio technology.
13. The firmware and voice messages shall be upgradeable. There shall be no requirement for the IC chips or module hardware to be removed or exchanged in order to complete a firmware update.
14. Use of field replaceable fuses is unacceptable. All fuses and overload protection circuits shall be solid state, and self-resetting in the event of overload.
15. The system shall allow time of day (TOD), week, month & holiday programming, with a minimum of 4 TOD alternate programs.
16. The system shall have an event tracking log and allow downloading of the time stamped event data.
17. The system shall operate to record and upload cumulative pedestrian count and call data.

The existing pedestrian pushbuttons and relevant equipment at Location 2 will be retained.

### **Wiring and Service Connections**

Traffic signal cable shall be of Type 2, #14 AWG stranded, 10-conductor minimum meeting the requirements of IMSA Specification 20-1, except for mast arm and /or span wire traffic signal cable, which shall be Type 2, #14 AWG stranded, 5-conductor minimum meeting the requirements of IMSA Specification 19-1. All systems shall have a minimum of one (1) 10-conductor cable for each vehicle phase, overlap phase, and pedestrian phase for controller outputs to field wiring required by the timing and sequence plan. A minimum of a five (5) spare conductors shall be provided in the base of each signal post and mast arm. Openings, where cables enter the base of a cabinet, shall be sealed with an approved elastic sealing compound. The open ends of conduits entering or leaving mast arms, posts, and pull boxes shall also be sealed with the approved elastic sealing compound.

The work for service connections shall consist of furnishing and installing all materials and equipment to deliver power to the traffic signals and related electrical systems.

## **Optical Emergency Preemption System**

The work consists of furnishing and installing optical traffic signal preemption systems ready for operation, as described herein and shown on the plans. Included in the work is the furnishing and installing of traffic signal preemption unit and related equipment, optical detection equipment and all necessary connections to the traffic signal controller. The emergency preemption system equipment shall be included in the latest version of the MassDOT Qualified Traffic Control Equipment List and shall be compatible with the City of Attleboro's emergency preemption system.

The emergency preemption system shall consist of a data-encoded phase selector to be installed within the existing control cabinet. This unit will serve to validate, identify, classify, and record the signal from the optical detectors located on support structures at the intersection. Upon receiving a valid signal from the detector, the phase selector shall generate a preempt call to the controller initiating a preemption operation as shown on the plans.

The phase selector shall be a rack-mounted plug-in two channel, dual priority device. Programming the phase selector shall be via a PC-based computer utilizing unit specific software. One copy of software on a disk shall be supplied and licensed to the City as part of this contract. A hard copy of final programming data shall be left in the control cabinet. The Contractor shall supply a complete set of interface cables for phase selector to laptop connection.

Emergency vehicles equipped with optical energy emitters transmit optical energy impulses to optical detectors mounted at the intersection. When optical energy impulses are received at the intersection, control of the signals shall transfer from the local controller to show a selected display shown on the plans to assist the vehicle through the intersection without conflict. After the vehicle has passed through the intersection, control of the signals shall then return to the local controller which shall restore the appropriate timings that were in effect prior to preemption.

### **1. General Operation and Description of Work**

The following description of work specifies the responsibilities involved in the installation of optical preemption equipment.

The Contractor is required to supply material and labor (required or shown) for the complete installation of optical preemption equipment at the specified location in this project. Intersection preemption equipment required includes optical detectors, phase selectors, card rack, preemption indicator lights, cable, interfacing of preemption equipment to the local controller, making electrical connections, and all required incidentals.

The following are the operational requirements of the optical preemption system:

- Operating sequence, as specified, shall be initiated when detector receives optical energy of the required repetition rate from an emitter.

- Detector shall transform the optical energy signals into electrical signals and transmit the electrical signal to the phase selector for processing.
- Phase selector shall cause the local controller to show a selected display identical to one of the color interval displays normally available in the controller which will assist the emergency vehicles through the intersection without conflict.
- Phase selector shall allow the controller to release from hold and resume normal operation after optical energy signals are lost provided the desired green display has already been obtained.

Detector cable for optical preemption equipment shall meet specifications of the system manufacturer.

## 2. **Installation**

The preemption equipment manufacturer shall be responsible for preemption system design and documentation.

Preemption System Design and documentation shall include the following:

- Provide the installing agency with locations for detector installation. Suggested detector locations are shown on the plans and may be changed to improve the operation. Notice shall be given to the Engineer prior to any change.
- Provide the controller manufacturer, Engineer, and owner with electrical diagrams.

The installer shall install the equipment consistent with the preemption equipment manufacturer's recommended installation procedures and electrical diagrams in a neat and workmanlike manner.

The preemption equipment manufacturer shall be responsible for operational checkout of the specified preemption functions prior to final acceptance and approval by the City.

Operating checkout includes the following:

- Verifying that the preemption system is properly installed as per the preemption manufacturer's recommendations and the electrical diagrams as provided by the preemption equipment manufacturer.
- Verifying that the priority system timing and range are properly set. Preemption equipment warranties are put into effect.
- Instructing the vehicle drivers or their representative(s) in the operation of the preemption system.

## 3. **Warranty**

All components of the preemption system specified herein shall be warranted by the manufacturer to be free of defects in materials and workmanship for a period of two years from the date of delivery or one year from the date of installation, whichever occurs first.



The Contractor shall repair or replace, free of charge to the City of Attleboro, any part that fails in any manner during the warranty period, and 12 (twelve) months after final acceptance of the project by the Owner.

### **Preemption Indicator Light**

A preemption indicator light shall be provided and mounted as shown on the plans. It shall be located in a position where it may be visible from all preemption approaches to each intersection. The light shall be weather tight and consist of a clear (white) strobe which shall be illuminated whenever the controller is in the emergency preemption phase. The indicator light shall meet ITE, NEMA, IMSA, and MassDOT standards.

### **Wireless Contact Closure Transceivers and Antennas**

The wireless contact closure transceiver shall provide bi-directional wireless I/O capabilities for point-to-point, point-to-multipoint, and multipoint-to-point applications. The unit shall operate in the 900 MHz and/or 2.4 GHz license free frequency band and shall utilize spread spectrum modulation with frequency hopping. The unit shall provide 8 channels of input and 8 channels of output. The unit shall be capable of operating in the following modes: Base, Repeater, Remote, and Remote/Repeater. The unit shall employ cyclic redundancy checking error detection and be capable of retransmitting data when an error occurs. The unit shall be capable of operating with three timing modes: low-latency, normal, and long-distance. The unit shall have front panel indicators for power, input, output and link.

The wireless contact closure transceiver shall be a shelf or wall mount unit and shall operate at 12 or 24 VDC.

**NOTE:** The contractor shall propose the antenna type and location so as to provide the most reliable operation. The contractor shall submit, as shop drawings, cut sheets for the proposed equipment and 20-scale sketches depicting the location of each proposed antenna.

### **Managed Ethernet Switch**

The Contractor shall furnish and install an Ethernet switch in the traffic signal control cabinet. The module shall support the Ethernet data IEEE 802.3 protocol using Auto-negotiating and Auto-MDI/MDI-X features. The module shall feature eight 10/100TX RJ-45 ports and three 100/1000FX SFP ports. The module shall require no in-field electrical or optical adjustments or in-line attenuators to ease installation. The module shall provide power, link speed, and fiber port status indicating LED's for monitoring proper system operation. The module shall have redundant power supply connections to minimize single point failure. The module shall provide a serial connection for local management of the device as well as a web-based configuration and management interface hosted on the device. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure. The switch shall be installed in the cabinet as shown on the plans and or as directed by the Engineer.

The Ethernet switch shall be of rugged design and suitable for reliable operation when mounted in the configuration as specified.

The Ethernet switch shall include all software required for monitoring and updating the Ethernet switch.

The Ethernet switch shall support the following IEEE Networking Standards:

1. IEEE 802.3 10Base-T Ethernet
2. IEEE 802.3u 100Base-TX Fast Ethernet
3. IEEE 802.3ab 1000Base-TX
4. IEEE 802.3z Gigabit Ethernet Fiber
5. IEEE 802.3x Flow Control and Back-pressure
6. IEEE 802.1p class of service
7. IEEE 802.1Q VLAN and GVRP
8. IEEE 802.1D-2004 Rapid Spanning Tree Protocol (RSTP)
9. IEEE802.3ad LACP
10. IEEE802.1X Port based Network Access Control

The switch shall provide the following switch performance:

1. Switch Technology: Store and Forward Technology with 32Gbps Switch Fabric.
2. System Throughput: 14,880pps for 10M Ethernet; 148,800pps for 100M Fast Ethernet; 1,488,100 for Gigabit Ethernet
3. Transfer Packet Size: 64 bytes to 1522 bytes (with VLAN Tag)
4. MAC Address: 8K MAC
5. Packet Buffer: 1Mbits
6. Relay Alarm: Dry Relay output with 1A@24V ability

The Contractor shall supply, install, and test all Ethernet cables required to make all connections in the cabinet.

The Ethernet switch shall be an Ethernet layer 2 device.

The Ethernet switch shall have a switching method of store and forward.

The Ethernet switch shall support the following protocols:

- RTP/ID
- TCP/IP with full multicast support
- DNS
- DHCP

The Ethernet switch shall support the following network management protocols:

- SNMP V2c
- RMON for Ethernet agent
- Telnet/TFTP

The Ethernet switch shall have an operating temperature range of -40 degrees to +74 degrees C.

The Ethernet switch shall have a power usage of +12VDC to +24 VDC at 1 amp.

This shall be provided by a plug-in type AC adapter supplied with the unit.

The Ethernet switch shall include all accessories required for complete operation of the unit, including Ethernet cables, fiber optic patch cables, power adapters, and mounting hardware, as a minimum.

The Contractor shall supply all necessary cables and power supply to ensure a working installation.

### **Point-to-point Ethernet Radio Unit**

The Contractor shall furnish, install and integrate a wireless communications system as part of the traffic signal control assembly. The antennas shall be located as shown on the plans. The wireless Ethernet radio unit shall contain provisions to link video feeds from the detection cameras, controller and MMU to allow remote computer monitoring and control capabilities.

The radio shall be 5.8 GHz point-to-point wireless broadband Ethernet system for ITS communications. 5.8 GHz is to be used for broadband connectivity applications. The system shall consist of connectorized radios and/or radios with integrated panel antennas. All radios and antennas shall all be the same as to make and model. The following specifications are the minimum requirements for the 5.8 GHz broadband wireless network.

**GENERAL REQUIREMENTS** - The 5.8 GHz wireless broadband system shall have the following minimum general operating characteristics:

1. Shall operate in an environment with an ambient temperature range of  $-40^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$  without the assistance of fan-forced cooling.
2. Shall operate in an environment with relative humidity of 5% to 95% (non-condensing).
3. The wireless Ethernet module shall be a ComNet NW1. The module shall support IEEE 802.3 protocol using the 802.11a/n standard. The module shall feature 2(two) 10/100/1000TX RJ-45 ports that support one port as an 802.3af/at PoE Powered Device and the other port as an 802.3at PoE Power Sourcing Equipment. The module shall support two antennas utilizing MIMO technology and a maximum throughput of 240Mbps. The modules shall be encased in an IP67 dust and water immersion housing. The module shall provide power, link, and signal strength status indicating LED's for monitoring proper system operation. The module shall have a lifetime warranty to reduce system life cycle cost in an event of a module failure.
4. The module shall be configurable for either Client, single point Access Point or multi-point Access Point operation.
5. Shall support transmission distances up to 2 miles (line-of-sight).
6. Shall support Spanning Tree Protocol.
7. All modules shall support passive PoE and IEEE802.3af/at PoE PD.
8. The module shall provide either auto-selectable or user static selectable frequency modes of operation.

9. The module shall support Dynamic Frequency Selection (DFS) and Transmit Power Control (TPC) operation.
10. The module shall provide up to +26dBm RF power output.
11. The module shall have selectable channel bandwidth capacity – 10, 20 or 20/40MHz.
12. The module shall provide antenna alignment, signal strength, and site survey tools.
13. The module shall be available with 19dBi or 8dBi gain integral antenna
14. The module shall use WPA2 – either AES or TKIP encryption.
15. The module radiated emission shall be compliant with ETSI standards.
16. The module shall be supplied in an IP67 compliant housing.
17. All modules and system parameters shall be configurable via a Graphical User Interface (GUI).
18. The following IEEE Networking Standards shall be supported:
  - i. IEEE 802.3 10Base-T Ethernet
  - ii. IEEE 802.3u 100Base-TX Fast Ethernet
  - iii. IEEE 802.3ab 1000Base-T Gigabit Ethernet
  - iv. IEEE 802.3af Power over Ethernet
  - v. IEEE 802.3at Power over Ethernet
  - vi. IEEE 802.3D Spanning Tree Protocol (STP)
  - vii. IEEE 802.11h DFS & TPC
  - viii. IEEE802.1X Port-based Network Access Control
  - ix. NTP Client
19. Wireless Radio Performance:
  - i. Bandwidths 10, 20, 40MHz
20. Wireless Antenna Performance:
  - i. Standard Internal Antenna Dual Polarized Directional
  - ii. Gain 20dBi
  - iii. Azimuth 17° Hor/Ver
  - iv. Elevation 17° Hor/Ver
21. Management
  - a. Configuration: Web, HTTPS, TFTP/Web Update for firmware and configuration backup/restore, DHCP Client, User configurable Watchdog and Auto-Reboot Mechanism, Reset to default, Multi-Level Configuration and Monitoring Login Accounts, User Configurable Long Range Parameters, Admin password, Port Speed/Duplex control, status, SNMP v2c.
  - b. NTP: Network Time Protocol to synchronize time from Internet
  - c. 802.1x: Port-based Network Access Control
  - d. DHCP Server
  - e. System Log
22. Electrical Specifications
  - i. Operating Voltage: 24VDC @ 175mA.
  - i. 48VDC @ 87.5mA
  - ii. PoE Support: IEEE 802.3af/at PD compliant, IEEE 802.3at PSE compliant
  - iii. Power Consumption: 5W max

## **Fine Tuning, Testing and Adjustment Period**

After the Contractor has finished installing the controller and all other associated signal equipment to operate as specified in the contract documents, the fine tuning, adjusting and testing period shall begin. During this period, the Contractor, under the direction of the Engineer, will make necessary adjustments and tests to insure safe and efficient operation of the equipment. This completion date has taken this testing period into consideration. No request for final acceptance will be considered until successful completion of the testing period.

### **Guarantee After Final Acceptance**

The Contractor shall diagnose (trouble-shoot) the system and, at his own expenses replace any part of the traffic signal control equipment found to be defective in workmanship, material or manner of functioning within six months from date of final acceptance of all the installations under this Contract. This requirement does not affect the one-year warranty period on equipment specified in Subsection 815.20 of the Standard Specifications.

Upon the date of acceptance of the project by the City, the Contractor shall turn over all guarantees and warranties to the City, where applicable.

### **Record Traffic Signal Layout Plans**

It is the responsibility of the Contractor to provide electronic Record traffic signal layout plans indicating all changes made during construction. The plans shall indicate the location of traffic signal equipment retained, removed and reset, and installed, including detectors, signal posts, mast arms and/or strain poles, pedestrian and vehicular signal heads, controller cabinets, conduit, pull boxes and service connections. The plans shall also indicate the final field timing and sequence, major items list, power-pole number, and meter number. Electronic Record plans shall be provided in accordance with MassDOT signal inventory standards, including electronic picture files, one for each approach to the signal.

### **Miscellaneous Requirements**

The actuated controller shall have capability to preempt to a preselected phase by external command. Because this is often overlooked, the Contractor's attention is drawn to the requirements of Subsection 813.60C, Splicing, relative to four optional methods of splicing in signal bases, Subsection 813.40C, Ground Electrodes, relative to Requirement 1 - Connection to a Water Piping System, and Subsection 813.61, Equipment Grounding.

All anchor bolts and bolts for holding hand hole and access covers shall be greased at the time of installation.

All proposed conduit shall be 3 inch Type NM, plastic conduit unless otherwise specified. 3 inch conduit shall be paid for under Item 804.3 and shall not be included in the lump sum bid price for Item 815.1

The Contractor shall make all necessary arrangements with the electric company for the service connections or for any main power cut off when necessary, and bear all charges incurred thereby.

## **Basis of Payment**

The lump sum price bid for Item 815.1 shall constitute full compensation for all labor, materials, and equipment necessary or incidental to the installation of a complete intersection traffic control signal system functioning as specified and as shown, including excavation and backfill, traffic signal post foundations, service connections and all charges therefore, except for the 3 inch electrical conduit, Type NM Plastic (UL), which will be paid for under Item 804.3. Pull boxes will be paid for under Item 811.31. Electric handholes will be paid for under Item 811.22.

The lump sum price bid for Item 816.02 shall constitute full compensation for all labor, materials, and equipment necessary or incidental to the reconstruction of an existing traffic control signal system functioning as specified and as shown, including replacement of equipment within the existing traffic signal cabinet, removal and replacement of traffic signal head(s), removal and replacement of vehicle detection, installation of video detection cameras and video detection cameras with radar, installation of point-to-point wireless radio communications, and rotation of any mast arm mounted equipment and signage as defined on the plans.

### **ITEM 816.82      TRAFFIC SIGNAL REMOVED AND DISCARDED      LUMP SUM**

The work to be performed under this item shall consist of disconnecting (power), dismantling, removing and discarding of all existing Traffic Signal Control Devices at the intersection of South Avenue (Route 123) and Snell Street. Once removed, all existing foundations will be demolished in accordance with Item 120.1 Unclassified Excavation. Existing span wire assembly foundations shall be removed to a depth of 6-inches below finished grade.

Payment for work to be done under this item will be by the lump sum price, which price will be full compensation for disconnecting, dismantling, loading, transporting, and discarding of all traffic signal equipment as designated above, the excavating and disposal of the existing foundation and supports, and the supplying and placing of compacted gravel backfill where foundations and supports are removed, and restoration of surface.

### **ITEM 824.221      RECTANGULAR RAPID FLASHING      LUMP SUM** **BEACON (SOLAR POWER)**

All work under this item shall be in accordance with Section 800 of the Standard Specifications, the Plans, and the following:

The procured and installed Rectangular Rapid Flashing Beacon (RRFB) assembly shall match the City Standard TAPCO RRFB XL2 (or equivalent) and shall match those installed as part of the Attleboro High School Project.

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for the complete RRFB system, and manufacturer's equipment specifications to the Engineer. No traffic signal work shall commence by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer.

### POSTS

The RRFB Assembly shall be mounted on 2" Square Posts or equivalent. Posts shall be painted gloss black.

### BEACONS

The Assembly shall use TAPCO RRFB XL2 type LED flashing beacons. Each post assembly shall use two beacons mounted back to back. Beacons shall flash for a maximum of 15 seconds per activation, followed by a minimum 30 seconds of "cool down" between subsequent activations.

All RRFBs within the system shall commence and cease operation simultaneously.

### POWER AND CABINET

The Assembly shall use the TAPCO "Top of Post Solar Control Cabinet Assembly" (or equivalent). The Solar Control Cabinet Assembly mounts atop the post and contains the solar array, flasher controller, battery, and relevant communications between the pushbuttons and assemblies on the opposite side of the roadway.

### ACTIVATION

The RRFB system shall remain dark until pedestrian actuation.

The RRFB Assembly shall be activated via pushbutton assemblies. Each pushbutton assembly, one per unit, shall include an R10-25 (PUSH BUTTON TO TURN ON WARNING LIGHTS) sign. The pushbutton shall be located and oriented in accordance with Fig 4E-4 of the 2009 MUTCD. Pushbuttons shall face the level landing. Pushbuttons with raised arrows shall be installed such that the arrow is parallel with the crossing path.

### SIGNS

The proposed RRFB assemblies shall use S1-1 (SCHOOL) signs and W16-7p (DOWNWARD ARROW) mounted back-to-back. The orientation of the "walking school children" shall face the roadway as if they are entering the street. Downward Arrows shall point in the direction of the street. This requires one S1-1L and one S1-1R sign mounted back to back, in addition to one W16-7pL and one W16-7pR sign mounted back to back. Signs shall be fabricated and installed in accordance with Section 800 of the standard specifications.

## BASIS OF PAYMENT

The RRFB system shall be paid for at the contract unit price per Lump Sum. This shall include all labor, materials, equipment, and incidental costs required to complete the work.

<b><u>ITEM 824.451</u></b>	<b><u>FLASHING WARNING BEACON</u></b>	<b><u>LUMP SUM</u></b>
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Work under this item shall conform to the relevant provisions of Section 800 of the Standard Specifications, the 2009 Manual on Uniform Traffic Control Devices (MUTCD), and the following:

Included in the work are the following items: signal posts and foundations; school speed limit sign; 12-inch yellow (amber) Light Emitting Diode (LED) signal heads; power adapter (NEMA 4 cabinet assembly); all cable and wiring; equipment grounding and bonding; service connection; and all other equipment and materials necessary to provide a fully operational School Zone Flashing Warning Beacon system as specified herein and as shown on the plans.

The system shall conform to all provisions of the Manual of Uniform Traffic Control Devices (MUTCD), Chapter 4L, Flashing Beacons, including Section 4L.04, Speed Limit Sign Beacon.

The location of the Flashing Warning Beacon included in this contract is Rathbun-Willard Drive, Sta. 04+55 RT±.

### Equipment and Operation

The equipment to be provided under these items shall include the following:

- Post-top mounted directional 12-inch amber LED flashing signals and bracket mounted directional 12-inch amber LED flashing signals. The LED signals shall be mounted on a 14-foot continually tapered aluminum pedestal pole with an internally lockable (Type II police lock), side-of-pole mounted control box (NEMA 4 cabinet assembly). The control box (NEMA 4 cabinet assembly) shall be pre-wired and tested by an authorized factory representative prior to delivery. The control box shall not constitute a Protruding Object per PROWAG section R402 and shall be mounted on the non-sidewalk side of the post. The proposed curve warning sign shall be mounted on the pedestal pole immediately below the post top LED signal.
- 12-inch amber LED flashing signals shall flash in an alternating fashion.
- Each location shall have a S5-1 School Speed Limit 20 When Flashing Sign (24"x48") mounted between the two LED flashing signals, one signal above the sign and one signal below. A clear distance of 12" shall be provided between the edge of each warning beacon and the edge of the nearest sign panel (see MUTCD Section 4L.01.05).
- Programmable time clock with a minimum of 6 daily intervals that automatically adjusts to Daylight Savings Time and Leap Year.



- Connection and power of the beacons shall be conducted by National Grid at the location shown on the plans. No work shall be done in manholes or on power poles without a representative of National Grid being present. The Contractor will be responsible for coordinating the National Grid work. It shall also be the Contractor's responsibility to pay all charges to National Grid for performing this work. No direct reimbursement will be made under this payment to the Contractor for payments made to National Grid, it being understood that full compensation for any payment made by the Contractor to the utility company will be included in the contract unit prices bid.

#### Posts and Bases

Signal posts and bases shall be aluminum with pedestal bases. Signal base foundations shall not obstruct a sidewalk or crosswalk so that passage by physically-challenged persons is impaired. Posts and bases shall be on MassDOT's Traffic Control Devices Approved Equipment List.

#### Shop Drawing Submittal

Within 30 days following execution of the Contract, the Contractor shall submit shop drawings for School Zone Flashing Warning Beacon system, a list of equipment, and manufacturer's equipment specifications to the Engineer in accordance with the relevant provisions of Section 815.20.

No work shall be commenced by the Contractor until approval of the shop drawings and manufacturer's data has been received in writing from the Engineer.

#### Signal Housing

The bracket assembly shall be constructed such that the signal housings can be removed easily in the field. The signal housings shall be easily removable from the assembly, and must be able to rotate independent from the bracket for lens alignment.

#### Warranty

The assembly and all components shall be replaced or repaired by the manufacturer if it exhibits a failure due to workmanship or material defects within the first 60 months of field operation.

#### System Documentation

The Contractor shall submit to the Engineer four (4) copies of the operating and maintenance instructions for all equipment complete in wiring diagram of the internal, external and field connections of all equipment the Contractor has installed on the project.

#### METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The Flashing Warning Beacon will be paid for at the contract lump sum price bid under Item 824.451. The lump sum price shall constitute full and complete compensation for all labor, materials, and equipment including, but not limited to, sawcutting, excavation, cement concrete, reinforcement, signal posts, bases and foundations; curve warning signs, 12" LED signal heads, connectors, service connection, NEMA cabinet, all cable and wiring, equipment grounding and bonding, and for all other incidentals necessary to complete the work as shown on the plans or as directed by the Engineer.

<b>ITEM 824.53</b>	<b>FLASHING WARNING BEACON</b>	<b>LUMP SUM</b>
	<b><u>REMOVED AND DISCARDED</u></b>	

The work under this item shall conform to the relevant provisions of Section 800 of the Standard Specifications and the following:

This item of work shall include but not necessarily be limited to: removing, transporting and discarding the existing School Zone post-mounted flashing beacons along South Avenue (Route 123) at Sta. 15+45 RT and Thacher Street (Route 123) at Sta. 21+08 LT, as directed by the Engineer, also including the removal and disposal of supports, foundations, and associated electrical systems, including all cable; and disconnecting the beacon power source (performed by National Grid). Old cable should be removed and properly disposed of by the Contractor.

**METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Item 824.53 will be measured and paid for at the contract unit price of Lump Sum. This cost shall include all labor, material, and equipment required for the disconnecting, dismantling, loading, transporting, and discarding of all flashing warning beacon equipment designated above, as well as all incidental costs required to complete the work at each location.

<b>ITEM 847.1</b>	<b>SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY</b>	<b>EACH</b>
	<b><u>POST ASSEMBLY – STEEL</u></b>	

Work under this Item shall conform to the applicable requirements of Sections 840 of the Standard Specifications with amendments listed herein:

All proposed P-5 type traffic sign supports shall be galvanized, open hole, 2" square posts in accordance with City standards. Anchor stubs shall be 2.25" square in accordance with City standards.

Payment under this Item shall be at the Contract Unit Price bid per each, which price shall be full compensation for furnishing and installing posts at locations shown on the plans or, as otherwise directed by the Engineer.

<b>ITEM 852.</b>	<b>SAFETY SIGNING FOR</b>	<b>SQUARE FOOT</b>
	<b><u>TRAFFIC MANAGEMENT</u></b>	

Work under this Item shall conform to the applicable requirements of Sections 828 and 840 of the Standard Specifications. Upon completion of the project construction signs, including support posts, shall be removed to a depth of at least 6 inches below grade.

Payment under this Item shall be by the Contract Unit Price bid per Square Foot, which price shall include the furnishing, installation, maintenance, removal, resetting and all labor, materials, equipment, transportation, and incidental costs to complete the work to the satisfaction of the Engineer.

<b>ITEM 852.11</b>	<b>TEMPORARY PEDESTRIAN BARRICADE</b>	<b>FOOT</b>
<b>ITEM 852.12</b>	<b>TEMPORARY PEDESTRIAN CURB RAMP</b>	<b>EACH</b>

Work under these items consist of furnishing, deploying, maintaining in proper operating conditions, and removing temporary pedestrian barricades and temporary pedestrian ramps as part of a Temporary Pedestrian Access Route (TPAR) in order to guide pedestrians around a fully or partially closed sidewalk. These devices are intended to prevent pedestrians from entering the work area and to prevent pedestrians from inadvertently entering the vehicle travel lane by providing visual and physical separation between each space.

### MATERIALS

The Temporary Pedestrian Barricade shall have a continuous bottom rail or edge no more than two (2) inches above the ground and six (6) inches in height (minimum) to accommodate cane users, have a smooth and continuous hand railing along the top edge no less than 32 inches above the ground and not obstruct or project into the pedestrian path of travel. Barricade walls shall be nearly vertical and generally within the same plane.

If exposed to traffic, Temporary Pedestrian Barricades shall be crashworthy.

The Temporary Pedestrian Curb Ramp shall provide a 60 inch minimum width, with a firm, stable, and non-slip surface. Protective edging with a two (2) inch minimum height shall be installed when the curb ramp or landing platform has a vertical drop of six (6) inches or greater.

The Temporary Pedestrian Curb Ramp walkway and landing area surface shall be of a solid, continuous, contrasting color abutting up to the existing sidewalk.

If a Temporary Pedestrian Curb Ramp leads to a crosswalk, a detectable warning pad must be used at the base of the ramp; if it leads to a protected path that does not conflict with vehicular traffic then a detectable pad shall not be used.

### CONSTRUCTION METHODS

The Temporary Pedestrian Barricade shall be placed in an area that will provide pedestrians with a TPAR on a smooth, continuous hard surface for its entirety. The geometry and alignment of the facility shall meet the applicable requirements of the “Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities” and the Massachusetts Architectural Access Board.

The recommended width of the TPAR is 60 inches, but if constraints exist a minimum clear width of 48 inches shall be provided along its entirety. If a 60 inch width cannot be accommodated in full, a 60 inch by 60 inch passing space shall be provided every 200 feet or less along the TPAR.

Turning areas shall be 60 inches by 60 inches minimum.

Lateral joints between any surfaces shall not exceed 0.5 inches. Lateral edges may be vertical up to 0.25 inches high and shall be beveled at 1V:2H between 0.25 inches and 0.5 inches.

The TPAR shall be kept clear of debris, snow, and ice and the Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall not obstruct drainage.

Removal and/or resetting of Temporary Pedestrian Barricades and Temporary Pedestrian Curb Ramps shall be considered incidental.

#### **BASIS OF PAYMENT**

Payment for Temporary Pedestrian Barricades will be made at the contract price per linear foot installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

Payment for Temporary Pedestrian Curb Ramps will be made at the contract price per each unit installed in place, including all incidental items. This price shall include the cost of furnishing, installing, resetting, removal, and maintaining in good working condition.

<b><u>ITEM 866.104</u></b>	<b><u>4-INCH REFLECTORIZED WHITE LINE</u></b>	<b><u>FOOT</u></b>
	<b><u>(THERMOPLASTIC)</u></b>	

<b><u>ITEM 867.104</u></b>	<b><u>4-INCH REFLECTORIZED YELLOW LINE</u></b>	<b><u>FOOT</u></b>
	<b><u>(THERMOPLASTIC)</u></b>	

The work to be done under this Item shall consist of the placement of reflectORIZED thermoplastic lines, in accordance with the relevant provisions of Section 860 and M7.01.

White and yellow markings shall be provided as shown on the plans.

Payment for four inch lines shall be made at the Contract Unit Price bid per Foot.

Dotted White Lane Extension Lines (DWLEx) and Dotted Yellow Lane Extension Lines (DYLEx) shall consist of two-foot lines and six-foot gaps/skips.

<b><u>ITEM 874.</u></b>	<b><u>STREET NAME SIGN</u></b>	<b><u>EACH</u></b>
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The work to be done under this item shall conform to the relevant provision as defined by the City of Attleboro. Where no provisions are provided, work to be done under this item shall conform to the relevant provisions of Section 828 and 840.

The City of Attleboro's provisions include, but not limited to:

1. The City of Attleboro seal shall be shown on all street name signs.

2. Signs shall be blue backing with white border and lettering.
3. Signs shall have a height of 9-inches with a maximum width of 48-inches.
4. Street Name lettering shall be size 6-inch B with Roadway Definition (Rd, Ave, St...) sizes of 3-inch B.
5. Letter sizing and spacing may be reduced, at the discretion of the City, to accommodate the requirements of provision Number 3.

#### **BASIS OF PAYMENT AND METHOD OF MEASUREMENT**

Payment for work under this item shall be at the contract unit price, each, for Item 874 - Street Name Sign, which price shall be full compensation for panel, hardware, brackets, bolts, painting, and equipment necessary for installation. Street name sign installations require two panels back to back per sign, which shall be paid as a per sign panel at the contract unit price, each.

Breakaway Sign post assembly with foundation shall be paid for under Item 847.1.

#### **ITEM 874.45      MISCELLANEOUS SIGNS REMOVED AND RESET      EACH**

The work under this item shall conform to the relevant provision of Section 800 of the Standard Specifications and the following:

The work shall include removing and resetting existing sign panels on ground-mounted supports at the current or new locations as indicated on the plans. The work shall include removal, resetting, and full restoration of flags or other decorative items attached to the existing signs. The work will also include the restoration to original condition, of any natural features disturbed in any way or manner by the operation.

#### **MATERIALS**

Materials for signs removed and reset shall be the existing signs and supports. If in the opinion of the Engineer, the existing sign panel or sign support is unsuitable for reuse, a new sign panel or sign support of a size and composition equal to the existing sign panel shall be furnished, as directed by the Engineer. New supports shall be provided for all traffic control signs and shall be paid for under Item 847.1.

The hardware used to attach the sign panel to the new or existing sign support shall be the existing bolts, brackets or clamps, or new and equal quality equipment furnished by the Contractor, as directed by the Engineer.

#### **CONSTRUCTION METHODS**

Sign panels to be removed and reset shall be cleaned before being remounted on new or existing sign supports.

The Contractor shall replace all sign panels or sign supports that are damaged or lost as a result of the Contractor's operations. The cost of replacing the damaged signs and supports shall be paid by the Contractor.

Work shall also include the excavation (including Class "B" Rock) of any existing foundations, to be removed, to a depth of at least 6 inches below grade and the supplying and placing of compacted gravel.

#### METHOD OF MEASUREMENT

Miscellaneous signs removed and reset will be measured for payment by the unit each, which will include dismantling, excavating and removing, loading, transporting, and resetting of the signs and their supports; gravel backfill; and concrete foundations where required.

#### BASIS OF PAYMENT

Miscellaneous signs removed and reset will be paid for at the Contract unit price per each, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

Replacement of sign panels and supports that have been determined to be unsuitable for reuse shall be paid for under the appropriate contract bid items. No payment shall be made for any sign panels or sign supports that have been damaged by the Contractor's operation.

New supports for traffic control signs shall be paid for under Item 847.1 – SIGN SUP (N/GUIDE)+RTE MKR W/1 BRKWAY POST ASSEMBLY – STEEL.

#### **ITEM 874.51 MISCELLANEOUS SIGNS REMOVED AND DISCARDED LUMP SUM**

Work under this item includes the dismantling, removal, transportation and discarding of the existing roadside signs shown on the plans and removal and disposal of the sign supports and their foundations.

The existing signs shall not be removed until the new signs and structures replacing them are ready for traffic or until the Engineer shall permit.

The work described above will constitute one lump sum unit.

## BASIS OF PAYMENT

Payment for work to be done under this item will be by the lump sum price, which price will be full compensation for dismantling, loading, transporting, and discarding of the signs as designated above, the excavating and disposal of the existing foundation and supports of the same, and the supplying and placing of compacted gravel backfill where foundations and posts are removed and restoration of surface.

<b>ITEM 999.</b>	<b>POLICE DETAIL</b>	<b>DAY</b>
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Work under this Item shall be in accordance with the following:

Police details will be required during the construction period. It shall be the responsibility of the Contractor to arrange for the necessary police details when approved by the City for each police detail required. This request and approval may be verbal or in writing at the discretion of the City.

The Contractor shall schedule and cancel details by contacting Dain Dos Santos at 508-223-2222 x 2133.

If the Contractor fails to cancel any police detail not needed, by the required deadline as set forth by the Attleboro Police Department, the cost for such detail as invoiced shall be deducted from the total reimbursement to the Contractor, unless otherwise waived by the City.

No payment shall be made for overtime for uniformed police officers for traffic control unless an emergency condition exists. The Contractor shall properly plan and execute his work so that all work in progress can be completed in an eight (8) hour day. If the Contractor elects to work more than eight (8) hours in any one day, or more than forty (40) hours in any one week, he shall assume all premium costs for overtime and will not be reimbursed for the same under this item. If emergency or planned overtime is approved by the Engineer, payment will be made as previously described hereinbefore.

Payment for the services of police officers shall be made at the prevailing rates of pay for special duty details in effect at the time of services. **No markup/administrative fee will be allowed.**

Payment for administrative costs processing police billings shall be considered included under the various items of this contract and no additional compensation shall be made.

**APPENDIX A**

**PREVAILING WAGE RATES**





CHARLES D. BAKER  
Governor

KARYN E. POLITO  
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT  
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the  
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

ROSALIN ACOSTA  
Secretary  
MICHAEL FLANAGAN  
Director

**Awarding Authority:** City of Attleboro

**Contract Number:** **City/Town:** ATTLEBORO

**Description of Work:** Mill and overlay, granite curbing, cement concrete sidewalk, loam and seed, plantings, signs and markings, Rectangular Rapid Flashing Beacon, erosion control, traffic signal removal and installation.

**Job Location:** Route 123 (Thacher St), Rathbun Willard Dr

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Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
  - An Awarding Authority must request an updated wage schedule from the Department of Labor Standards ("DLS") if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
  - The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
  - All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
  - The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule. Awarding authorities are required to request these updates no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
  - Every contractor or subcontractor which performs construction work on the project is required to submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
  - Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
  - Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
  - Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SOUTHERN MASS)</i>	12/01/2020	\$38.10	\$12.80	\$9.45	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i> For apprentice rates see "Apprentice- LABORER (Heavy and Highway)	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2020	\$46.10	\$7.07	\$17.98	\$0.00	\$71.15

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
2	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
3	70	\$32.27	\$7.07	\$12.59	\$0.00	\$51.93
4	75	\$34.58	\$7.07	\$13.49	\$0.00	\$55.14
5	80	\$36.88	\$7.07	\$14.38	\$0.00	\$58.33
6	85	\$39.19	\$7.07	\$15.29	\$0.00	\$61.55
7	90	\$41.49	\$7.07	\$16.18	\$0.00	\$64.74
8	95	\$43.80	\$7.07	\$17.09	\$0.00	\$67.96

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2021	\$55.01	\$11.39	\$21.57	\$0.00	\$87.97
<i>BRICKLAYERS LOCAL 3 (FOXBORO)</i>	02/01/2022	\$55.59	\$11.39	\$21.57	\$0.00	\$88.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Foxboro**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.51	\$11.39	\$21.57	\$0.00	\$60.47
2	60	\$33.01	\$11.39	\$21.57	\$0.00	\$65.97
3	70	\$38.51	\$11.39	\$21.57	\$0.00	\$71.47
4	80	\$44.01	\$11.39	\$21.57	\$0.00	\$76.97
5	90	\$49.51	\$11.39	\$21.57	\$0.00	\$82.47

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.80	\$11.39	\$21.57	\$0.00	\$60.76
2	60	\$33.35	\$11.39	\$21.57	\$0.00	\$66.31
3	70	\$38.91	\$11.39	\$21.57	\$0.00	\$71.87
4	80	\$44.47	\$11.39	\$21.57	\$0.00	\$77.43
5	90	\$50.03	\$11.39	\$21.57	\$0.00	\$82.99

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

BULLDOZER/GRADER/SCRAPER OPERATING ENGINEERS LOCAL 4	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE	12/01/2021	\$42.33	\$9.10	\$17.72	\$0.00	\$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN LABORERS - FOUNDATION AND MARINE	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR LABORERS - ZONE 2	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CARPENTER CARPENTERS -ZONE 2 (Eastern Massachusetts)	09/01/2021	\$44.18	\$8.58	\$19.82	\$0.00	\$72.58
	03/01/2022	\$44.78	\$8.58	\$19.82	\$0.00	\$73.18
	09/01/2022	\$45.43	\$8.58	\$19.82	\$0.00	\$73.83
	03/01/2023	\$46.03	\$8.58	\$19.82	\$0.00	\$74.43

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate**

**Apprentice - CARPENTER - Zone 2 Eastern MA**

**Effective Date - 09/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.09	\$8.58	\$1.73	\$0.00	\$32.40
2	60	\$26.51	\$8.58	\$1.73	\$0.00	\$36.82
3	70	\$30.93	\$8.58	\$14.63	\$0.00	\$54.14
4	75	\$33.14	\$8.58	\$14.63	\$0.00	\$56.35
5	80	\$35.34	\$8.58	\$16.36	\$0.00	\$60.28
6	80	\$35.34	\$8.58	\$16.36	\$0.00	\$60.28
7	90	\$39.76	\$8.58	\$18.09	\$0.00	\$66.43
8	90	\$39.76	\$8.58	\$18.09	\$0.00	\$66.43

**Effective Date - 03/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.39	\$8.58	\$1.73	\$0.00	\$32.70
2	60	\$26.87	\$8.58	\$1.73	\$0.00	\$37.18
3	70	\$31.35	\$8.58	\$14.63	\$0.00	\$54.56
4	75	\$33.59	\$8.58	\$14.63	\$0.00	\$56.80
5	80	\$35.82	\$8.58	\$16.36	\$0.00	\$60.76
6	80	\$35.82	\$8.58	\$16.36	\$0.00	\$60.76
7	90	\$40.30	\$8.58	\$18.09	\$0.00	\$66.97
8	90	\$40.30	\$8.58	\$18.09	\$0.00	\$66.97

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$30.19/ 3&4 \$36.28/ 5&6 \$55.87/ 7&8 \$62.01

**Apprentice to Journeyworker Ratio:1:5**

CARPENTER WOOD FRAME	04/01/2021	\$23.16	\$7.21	\$4.80	\$0.00	\$35.17
CARPENTERS-ZONE 3 (Wood Frame)	04/01/2022	\$23.66	\$7.21	\$4.80	\$0.00	\$35.67
	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17

All Aspects of New Wood Frame Work

**Classification**
**Effective Date**
**Base Wage**
**Health**
**Pension**
**Supplemental  
Unemployment**
**Total Rate**
**Apprentice - CARPENTER (Wood Frame) - Zone 3**
**Effective Date - 04/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$13.90	\$7.21	\$0.00	\$0.00	\$21.11
2	60	\$13.90	\$7.21	\$0.00	\$0.00	\$21.11
3	65	\$15.05	\$7.21	\$0.00	\$0.00	\$22.26
4	70	\$16.21	\$7.21	\$0.00	\$0.00	\$23.42
5	75	\$17.37	\$7.21	\$3.80	\$0.00	\$28.38
6	80	\$18.53	\$7.21	\$3.80	\$0.00	\$29.54
7	85	\$19.69	\$7.21	\$3.80	\$0.00	\$30.70
8	90	\$20.84	\$7.21	\$3.80	\$0.00	\$31.85

**Effective Date - 04/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
2	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
3	65	\$15.38	\$7.21	\$0.00	\$0.00	\$22.59
4	70	\$16.56	\$7.21	\$0.00	\$0.00	\$23.77
5	75	\$17.75	\$7.21	\$3.80	\$0.00	\$28.76
6	80	\$18.93	\$7.21	\$3.80	\$0.00	\$29.94
7	85	\$20.11	\$7.21	\$3.80	\$0.00	\$31.12
8	90	\$21.29	\$7.21	\$3.80	\$0.00	\$32.30

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$17.63/ 3&4 \$19.95/ 5&6 \$27.22/ 7&8 \$29.54

**Apprentice to Journeyworker Ratio:1:5**

CEMENT MASONRY/PLASTERING  
BRICKLAYERS LOCAL 3 (FOXBORO)

01/01/2020

\$44.67

\$12.75

\$22.41

\$0.62

\$80.45

**Apprentice - CEMENT MASONRY/PLASTERING - Foxboro**
**Effective Date - 01/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.34	\$12.75	\$15.41	\$0.00	\$50.50
2	60	\$26.80	\$12.75	\$17.41	\$0.62	\$57.58
3	65	\$29.04	\$12.75	\$18.41	\$0.62	\$60.82
4	70	\$31.27	\$12.75	\$19.41	\$0.62	\$64.05
5	75	\$33.50	\$12.75	\$20.41	\$0.62	\$67.28
6	80	\$35.74	\$12.75	\$21.41	\$0.62	\$70.52
7	90	\$40.20	\$12.75	\$22.41	\$0.62	\$75.98

**Notes:**

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

**Apprentice to Journeyworker Ratio:1:3**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$52.38	\$14.00	\$16.05	\$0.00	\$82.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2022	\$53.66	\$8.65	\$23.05	\$0.00	\$85.36
	07/01/2022	\$54.86	\$8.65	\$23.05	\$0.00	\$86.56
	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.83	\$8.65	\$0.00	\$0.00	\$35.48
2	55	\$29.51	\$8.65	\$6.27	\$0.00	\$44.43
3	60	\$32.20	\$8.65	\$6.84	\$0.00	\$47.69
4	65	\$34.88	\$8.65	\$7.41	\$0.00	\$50.94
5	70	\$37.56	\$8.65	\$19.63	\$0.00	\$65.84
6	75	\$40.25	\$8.65	\$20.20	\$0.00	\$69.10
7	80	\$42.93	\$8.65	\$20.77	\$0.00	\$72.35
8	90	\$48.29	\$8.65	\$21.91	\$0.00	\$78.85

**Effective Date - 07/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$8.65	\$0.00	\$0.00	\$36.08
2	55	\$30.17	\$8.65	\$6.27	\$0.00	\$45.09
3	60	\$32.92	\$8.65	\$6.84	\$0.00	\$48.41
4	65	\$35.66	\$8.65	\$7.41	\$0.00	\$51.72
5	70	\$38.40	\$8.65	\$19.63	\$0.00	\$66.68
6	75	\$41.15	\$8.65	\$20.20	\$0.00	\$70.00
7	80	\$43.89	\$8.65	\$20.77	\$0.00	\$73.31
8	90	\$49.37	\$8.65	\$21.91	\$0.00	\$79.93

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN	12/01/2021	\$41.33	\$9.10	\$17.57	\$0.00	\$68.00
LABORERS - ZONE 2	06/01/2022	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	12/01/2021	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
LABORERS - ZONE 2	06/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS	12/01/2021	\$42.08	\$9.10	\$17.57	\$0.00	\$68.75
LABORERS - ZONE 2	06/01/2022	\$43.08	\$9.10	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2021	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	06/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.33	\$9.10	\$17.57	\$0.00	\$72.00
	12/01/2023	\$46.58	\$9.10	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$42.08	\$9.10	\$17.57	\$0.00	\$68.75
	06/01/2022	\$43.08	\$9.10	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.08	\$9.10	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.08	\$9.10	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.33	\$9.10	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2021	\$41.33	\$9.10	\$17.57	\$0.00	\$68.00
	06/01/2022	\$42.33	\$9.10	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.33	\$9.10	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.33	\$9.10	\$17.57	\$0.00	\$71.00
	12/01/2023	\$45.58	\$9.10	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 2)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 99</i>	06/01/2019	\$40.40	\$10.87	\$11.22	\$0.00	\$62.49

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - ELECTRICIAN - Local 99**

**Effective Date - 06/01/2019**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$16.97	\$4.56	\$0.51	\$0.00	\$22.04
2	47	\$18.99	\$5.11	\$0.57	\$0.00	\$24.67
3	52	\$21.01	\$5.65	\$5.84	\$0.00	\$32.50
4	55	\$22.22	\$5.98	\$6.17	\$0.00	\$34.37
5	58	\$23.43	\$6.30	\$6.50	\$0.00	\$36.23
6	60	\$24.24	\$6.52	\$6.74	\$0.00	\$37.50
7	65	\$26.26	\$7.06	\$7.30	\$0.00	\$40.62
8	70	\$28.28	\$7.61	\$7.85	\$0.00	\$43.74
9	75	\$30.30	\$8.15	\$8.42	\$0.00	\$46.87
10	75	\$30.30	\$8.15	\$8.42	\$0.00	\$46.87

**Notes:**

Steps 1-2 are 1000 hrs.; Steps 3-10 are 6 mos (750 hrs.)

**Apprentice to Journeyworker Ratio:2:3\*\*\***

ELEVATOR CONSTRUCTOR	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86
ELEVATOR CONSTRUCTORS LOCAL 4						

**Apprentice - ELEVATOR CONSTRUCTOR - Local 4**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

**Notes:**

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
ELEVATOR CONSTRUCTORS LOCAL 4						

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2 (HEAVY & HIGHWAY)						

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	11/01/2021	\$46.53	\$13.75	\$15.80	\$0.00	\$76.08
OPERATING ENGINEERS LOCAL 4	05/01/2022	\$47.86	\$13.75	\$15.80	\$0.00	\$77.41

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	11/01/2021	\$48.06	\$13.75	\$15.80	\$0.00	\$77.61
OPERATING ENGINEERS LOCAL 4	05/01/2022	\$49.22	\$13.75	\$15.80	\$0.00	\$78.77

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2021	\$23.16	\$13.75	\$15.80	\$0.00	\$52.71
	05/01/2022	\$23.83	\$13.75	\$15.80	\$0.00	\$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 99</i>	06/01/2019	\$40.40	\$10.87	\$11.22	\$0.00	\$62.49
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 99</i>	06/01/2019	\$30.30	\$10.87	\$6.63	\$0.00	\$47.80
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$41.76	\$14.00	\$16.05	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$24.50	\$9.10	\$16.64	\$0.00	\$50.24
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE I</i>	09/01/2021	\$49.38	\$8.58	\$20.12	\$0.00	\$78.08
	03/01/2022	\$50.18	\$8.58	\$20.12	\$0.00	\$78.88

**Apprentice - FLOORCOVERER - Local 2168 Zone I**

**Effective Date - 09/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.69	\$8.58	\$1.79	\$0.00	\$35.06
2	55	\$27.16	\$8.58	\$1.79	\$0.00	\$37.53
3	60	\$29.63	\$8.58	\$14.75	\$0.00	\$52.96
4	65	\$32.10	\$8.58	\$14.75	\$0.00	\$55.43
5	70	\$34.57	\$8.58	\$16.54	\$0.00	\$59.69
6	75	\$37.04	\$8.58	\$16.54	\$0.00	\$62.16
7	80	\$39.50	\$8.58	\$18.33	\$0.00	\$66.41
8	85	\$41.97	\$8.58	\$18.33	\$0.00	\$68.88

**Effective Date - 03/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.09	\$8.58	\$1.79	\$0.00	\$35.46
2	55	\$27.60	\$8.58	\$1.79	\$0.00	\$37.97
3	60	\$30.11	\$8.58	\$14.75	\$0.00	\$53.44
4	65	\$32.62	\$8.58	\$14.75	\$0.00	\$55.95
5	70	\$35.13	\$8.58	\$16.54	\$0.00	\$60.25
6	75	\$37.64	\$8.58	\$16.54	\$0.00	\$62.76
7	80	\$40.14	\$8.58	\$18.33	\$0.00	\$67.05
8	85	\$42.65	\$8.58	\$18.33	\$0.00	\$69.56

**Notes:** Steps are 750 hrs.

% After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)

Step 1&2 \$32.59/ 3&4 \$39.26/ 5&6 \$59.69/ 7&8 \$66.41

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 1333</i>	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43

**Apprentice - GLAZIER - Local 1333**

**Effective Date - 06/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.59	\$10.80	\$1.80	\$0.00	\$32.19
2	56	\$22.04	\$10.80	\$1.80	\$0.00	\$34.64
3	63	\$24.49	\$10.80	\$2.45	\$0.00	\$37.74
4	69	\$26.94	\$10.80	\$2.45	\$0.00	\$40.19
5	75	\$29.39	\$10.80	\$3.15	\$0.00	\$43.34
6	81	\$31.83	\$10.80	\$3.15	\$0.00	\$45.78
7	88	\$34.28	\$10.80	\$10.45	\$0.00	\$55.53
8	94	\$36.73	\$10.80	\$10.45	\$0.00	\$57.98

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
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**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date - 12/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$28.26	\$14.00	\$0.00	\$0.00	\$42.26
2	60	\$30.83	\$14.00	\$16.05	\$0.00	\$60.88
3	65	\$33.40	\$14.00	\$16.05	\$0.00	\$63.45
4	70	\$35.97	\$14.00	\$16.05	\$0.00	\$66.02
5	75	\$38.54	\$14.00	\$16.05	\$0.00	\$68.59
6	80	\$41.10	\$14.00	\$16.05	\$0.00	\$71.15
7	85	\$43.67	\$14.00	\$16.05	\$0.00	\$73.72
8	90	\$46.24	\$14.00	\$16.05	\$0.00	\$76.29

**Notes:**

**Apprentice to Journeyworker Ratio:1:6**

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2021	\$51.95	\$13.80	\$25.60	\$2.74	\$94.09
	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89

For apprentice rates see "Apprentice- SHEET METAL WORKER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 99</i>	06/01/2019	\$40.40	\$10.87	\$11.22	\$0.00	\$62.49
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2021	\$51.95	\$13.80	\$25.60	\$2.74	\$94.09
	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PLUMBERS &amp; PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS &amp; PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.06	\$9.10	\$16.64	\$0.00	\$62.80
	12/01/2022	\$37.91	\$9.10	\$16.64	\$0.00	\$63.65
	06/01/2023	\$38.81	\$9.10	\$16.64	\$0.00	\$64.55
	12/01/2023	\$39.71	\$9.10	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$36.16	\$9.10	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SOUTHERN MASS)</i>	09/01/2021	\$46.50	\$13.80	\$17.14	\$0.00	\$77.44
	09/01/2022	\$48.95	\$13.80	\$17.14	\$0.00	\$79.89

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Southern MA**

**Effective Date -** 09/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.25	\$13.80	\$12.42	\$0.00	\$49.47
2	60	\$27.90	\$13.80	\$13.36	\$0.00	\$55.06
3	70	\$32.55	\$13.80	\$14.31	\$0.00	\$60.66
4	80	\$37.20	\$13.80	\$15.25	\$0.00	\$66.25

**Effective Date -** 09/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.48	\$13.80	\$12.42	\$0.00	\$50.70
2	60	\$29.37	\$13.80	\$13.36	\$0.00	\$56.53
3	70	\$34.27	\$13.80	\$14.31	\$0.00	\$62.38
4	80	\$39.16	\$13.80	\$15.25	\$0.00	\$68.21

**Notes:**

Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 37</i>	03/16/2021	\$42.46	\$7.70	\$17.10	\$0.00	\$67.26
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## Classification

Effective Date

Base Wage

Health

Pension

Supplemental  
Unemployment

Total Rate

**Apprentice - IRONWORKER - Local 37****Effective Date - 03/16/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	\$29.72	\$7.70	\$17.10	\$0.00	\$54.52
2	75	\$31.85	\$7.70	\$17.10	\$0.00	\$56.65
3	80	\$33.97	\$7.70	\$17.10	\$0.00	\$58.77
4	85	\$36.09	\$7.70	\$17.10	\$0.00	\$60.89
5	90	\$38.21	\$7.70	\$17.10	\$0.00	\$63.01
6	95	\$40.34	\$7.70	\$17.10	\$0.00	\$65.14

**Notes:****Apprentice to Journeyworker Ratio:1:4****JACKHAMMER & PAVING BREAKER OPERATOR***LABORERS - ZONE 2*

12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

**LABORER***LABORERS - ZONE 2*

12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

**Apprentice - LABORER - Zone 2****Effective Date - 12/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.25	\$9.10	\$16.64	\$0.00	\$46.99
2	70	\$24.79	\$9.10	\$16.64	\$0.00	\$50.53
3	80	\$28.33	\$9.10	\$16.64	\$0.00	\$54.07
4	90	\$31.87	\$9.10	\$16.64	\$0.00	\$57.61

**Effective Date - 06/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.79	\$9.10	\$16.64	\$0.00	\$47.53
2	70	\$25.42	\$9.10	\$16.64	\$0.00	\$51.16
3	80	\$29.05	\$9.10	\$16.64	\$0.00	\$54.79
4	90	\$32.68	\$9.10	\$16.64	\$0.00	\$58.42

**Notes:****Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
<b>Apprentice - LABORER (Heavy &amp; Highway) - Zone 2</b> <b>Effective Date - 12/01/2021</b>						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.25	\$9.10	\$16.64	\$0.00	\$46.99
2	70	\$24.79	\$9.10	\$16.64	\$0.00	\$50.53
3	80	\$28.33	\$9.10	\$16.64	\$0.00	\$54.07
4	90	\$31.87	\$9.10	\$16.64	\$0.00	\$57.61
<div>Notes:</div>						
<b>Apprentice to Journeyworker Ratio:1:5</b>						
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.50	\$9.10	\$16.70	\$0.00	\$61.30
	06/01/2022	\$36.40	\$9.10	\$16.70	\$0.00	\$62.20
	12/01/2022	\$37.25	\$9.10	\$16.70	\$0.00	\$63.05
	06/01/2023	\$38.15	\$9.10	\$16.70	\$0.00	\$63.95
	12/01/2023	\$39.05	\$9.10	\$16.70	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
LABORERS - ZONE 2	06/01/2022	\$36.31	\$9.10	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.16	\$9.10	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.06	\$9.10	\$16.64	\$0.00	\$63.80
	12/01/2023	\$38.96	\$9.10	\$16.64	\$0.00	\$64.70
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2 (HEAVY & HIGHWAY)						
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS	08/01/2021	\$43.69	\$11.39	\$20.30	\$0.00	\$75.38
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2022	\$44.16	\$11.39	\$20.30	\$0.00	\$75.85

**Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.85	\$11.39	\$20.30	\$0.00	\$53.54
2	60	\$26.21	\$11.39	\$20.30	\$0.00	\$57.90
3	70	\$30.58	\$11.39	\$20.30	\$0.00	\$62.27
4	80	\$34.95	\$11.39	\$20.30	\$0.00	\$66.64
5	90	\$39.32	\$11.39	\$20.30	\$0.00	\$71.01

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.08	\$11.39	\$20.30	\$0.00	\$53.77
2	60	\$26.50	\$11.39	\$20.30	\$0.00	\$58.19
3	70	\$30.91	\$11.39	\$20.30	\$0.00	\$62.60
4	80	\$35.33	\$11.39	\$20.30	\$0.00	\$67.02
5	90	\$39.74	\$11.39	\$20.30	\$0.00	\$71.43

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	08/01/2021	\$57.17	\$11.39	\$22.24	\$0.00	\$90.80
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2022	\$57.74	\$11.39	\$22.24	\$0.00	\$91.37



**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**

**Effective Date -** 08/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.59	\$11.39	\$22.24	\$0.00	\$62.22
2	60	\$34.30	\$11.39	\$22.24	\$0.00	\$67.93
3	70	\$40.02	\$11.39	\$22.24	\$0.00	\$73.65
4	80	\$45.74	\$11.39	\$22.24	\$0.00	\$79.37
5	90	\$51.45	\$11.39	\$22.24	\$0.00	\$85.08

**Effective Date -** 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.87	\$11.39	\$22.24	\$0.00	\$62.50
2	60	\$34.64	\$11.39	\$22.24	\$0.00	\$68.27
3	70	\$40.42	\$11.39	\$22.24	\$0.00	\$74.05
4	80	\$46.19	\$11.39	\$22.24	\$0.00	\$79.82
5	90	\$51.97	\$11.39	\$22.24	\$0.00	\$85.60

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) MILLWRIGHTS LOCAL 1121 - Zone 2	01/03/2022	\$40.67	\$8.58	\$21.57	\$0.00	\$70.82
	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Apprentice - MILLWRIGHT - Local 1121 Zone 2</b>						
<b>Effective Date - 01/03/2022</b>						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.37	\$8.58	\$5.72	\$0.00	\$36.67
2	65	\$26.44	\$8.58	\$17.93	\$0.00	\$52.95
3	75	\$30.50	\$8.58	\$18.98	\$0.00	\$58.06
4	85	\$34.57	\$8.58	\$20.01	\$0.00	\$63.16
<b>Effective Date - 01/02/2023</b>						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.06	\$8.58	\$5.72	\$0.00	\$37.36
2	65	\$27.25	\$8.58	\$17.93	\$0.00	\$53.76
3	75	\$31.44	\$8.58	\$18.98	\$0.00	\$59.00
4	85	\$35.63	\$8.58	\$20.01	\$0.00	\$64.22
<div><b>Notes:</b> Step 1&amp;2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66) Steps are 2,000 hours</div>						
<b>Apprentice to Journeyworker Ratio:1:4</b>						
MORTAR MIXER	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS)	12/01/2021	\$23.48	\$14.00	\$16.05	\$0.00	\$53.53
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS)	12/01/2021	\$28.44	\$14.00	\$16.05	\$0.00	\$58.49
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
OPERATING ENGINEERS LOCAL 4						
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS)	01/01/2022	\$53.66	\$8.65	\$23.05	\$0.00	\$85.36
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$54.86	\$8.65	\$23.05	\$0.00	\$86.56
	01/01/2023	\$56.06	\$8.65	\$23.05	\$0.00	\$87.76
	07/01/2023	\$57.26	\$8.65	\$23.05	\$0.00	\$88.96
	01/01/2024	\$58.46	\$8.65	\$23.05	\$0.00	\$90.16
	07/01/2024	\$59.66	\$8.65	\$23.05	\$0.00	\$91.36
	01/01/2025	\$60.86	\$8.65	\$23.05	\$0.00	\$92.56

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS****Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.83	\$8.65	\$0.00	\$0.00	\$35.48
2	55	\$29.51	\$8.65	\$6.27	\$0.00	\$44.43
3	60	\$32.20	\$8.65	\$6.84	\$0.00	\$47.69
4	65	\$34.88	\$8.65	\$7.41	\$0.00	\$50.94
5	70	\$37.56	\$8.65	\$19.63	\$0.00	\$65.84
6	75	\$40.25	\$8.65	\$20.20	\$0.00	\$69.10
7	80	\$42.93	\$8.65	\$20.77	\$0.00	\$72.35
8	90	\$48.29	\$8.65	\$21.91	\$0.00	\$78.85

**Effective Date - 07/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$8.65	\$0.00	\$0.00	\$36.08
2	55	\$30.17	\$8.65	\$6.27	\$0.00	\$45.09
3	60	\$32.92	\$8.65	\$6.84	\$0.00	\$48.41
4	65	\$35.66	\$8.65	\$7.41	\$0.00	\$51.72
5	70	\$38.40	\$8.65	\$19.63	\$0.00	\$66.68
6	75	\$41.15	\$8.65	\$20.20	\$0.00	\$70.00
7	80	\$43.89	\$8.65	\$20.77	\$0.00	\$73.31
8	90	\$49.37	\$8.65	\$21.91	\$0.00	\$79.93

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) \*

\* If 30% or more of surfaces to be painted are new construction,  
NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

01/01/2022	\$44.56	\$8.65	\$23.05	\$0.00	\$76.26
07/01/2022	\$45.76	\$8.65	\$23.05	\$0.00	\$77.46
01/01/2023	\$46.96	\$8.65	\$23.05	\$0.00	\$78.66
07/01/2023	\$48.16	\$8.65	\$23.05	\$0.00	\$79.86
01/01/2024	\$49.36	\$8.65	\$23.05	\$0.00	\$81.06
07/01/2024	\$50.56	\$8.65	\$23.05	\$0.00	\$82.26
01/01/2025	\$51.76	\$8.65	\$23.05	\$0.00	\$83.46

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.28	\$8.65	\$0.00	\$0.00	\$30.93
2	55	\$24.51	\$8.65	\$6.27	\$0.00	\$39.43
3	60	\$26.74	\$8.65	\$6.84	\$0.00	\$42.23
4	65	\$28.96	\$8.65	\$7.41	\$0.00	\$45.02
5	70	\$31.19	\$8.65	\$19.63	\$0.00	\$59.47
6	75	\$33.42	\$8.65	\$20.20	\$0.00	\$62.27
7	80	\$35.65	\$8.65	\$20.77	\$0.00	\$65.07
8	90	\$40.10	\$8.65	\$21.91	\$0.00	\$70.66

**Effective Date - 07/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.88	\$8.65	\$0.00	\$0.00	\$31.53
2	55	\$25.17	\$8.65	\$6.27	\$0.00	\$40.09
3	60	\$27.46	\$8.65	\$6.84	\$0.00	\$42.95
4	65	\$29.74	\$8.65	\$7.41	\$0.00	\$45.80
5	70	\$32.03	\$8.65	\$19.63	\$0.00	\$60.31
6	75	\$34.32	\$8.65	\$20.20	\$0.00	\$63.17
7	80	\$36.61	\$8.65	\$20.77	\$0.00	\$66.03
8	90	\$41.18	\$8.65	\$21.91	\$0.00	\$71.74

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2022	\$42.62	\$8.65	\$23.05	\$0.00	\$74.32
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$43.82	\$8.65	\$23.05	\$0.00	\$75.52
	01/01/2023	\$45.02	\$8.65	\$23.05	\$0.00	\$76.72
	07/01/2023	\$46.22	\$8.65	\$23.05	\$0.00	\$77.92
	01/01/2024	\$47.42	\$8.65	\$23.05	\$0.00	\$79.12
	07/01/2024	\$48.62	\$8.65	\$23.05	\$0.00	\$80.32
	01/01/2025	\$49.82	\$8.65	\$23.05	\$0.00	\$81.52

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.31	\$8.65	\$0.00	\$0.00	\$29.96
2	55	\$23.44	\$8.65	\$6.27	\$0.00	\$38.36
3	60	\$25.57	\$8.65	\$6.84	\$0.00	\$41.06
4	65	\$27.70	\$8.65	\$7.41	\$0.00	\$43.76
5	70	\$29.83	\$8.65	\$19.63	\$0.00	\$58.11
6	75	\$31.97	\$8.65	\$20.20	\$0.00	\$60.82
7	80	\$34.10	\$8.65	\$20.77	\$0.00	\$63.52
8	90	\$38.36	\$8.65	\$21.91	\$0.00	\$68.92

**Effective Date - 07/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.91	\$8.65	\$0.00	\$0.00	\$30.56
2	55	\$24.10	\$8.65	\$6.27	\$0.00	\$39.02
3	60	\$26.29	\$8.65	\$6.84	\$0.00	\$41.78
4	65	\$28.48	\$8.65	\$7.41	\$0.00	\$44.54
5	70	\$30.67	\$8.65	\$19.63	\$0.00	\$58.95
6	75	\$32.87	\$8.65	\$20.20	\$0.00	\$61.72
7	80	\$35.06	\$8.65	\$20.77	\$0.00	\$64.48
8	90	\$39.44	\$8.65	\$21.91	\$0.00	\$70.00

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, NEW) *	01/01/2022	\$43.16	\$8.65	\$23.05	\$0.00	\$74.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2022	\$44.36	\$8.65	\$23.05	\$0.00	\$76.06
	01/01/2023	\$45.56	\$8.65	\$23.05	\$0.00	\$77.26
	07/01/2023	\$46.76	\$8.65	\$23.05	\$0.00	\$78.46
	01/01/2024	\$47.96	\$8.65	\$23.05	\$0.00	\$79.66
	07/01/2024	\$49.16	\$8.65	\$23.05	\$0.00	\$80.86
	01/01/2025	\$50.36	\$8.65	\$23.05	\$0.00	\$82.06

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental  
Unemployment    Total Rate**

**Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.58	\$8.65	\$0.00	\$0.00	\$30.23
2	55	\$23.74	\$8.65	\$6.27	\$0.00	\$38.66
3	60	\$25.90	\$8.65	\$6.84	\$0.00	\$41.39
4	65	\$28.05	\$8.65	\$7.41	\$0.00	\$44.11
5	70	\$30.21	\$8.65	\$19.63	\$0.00	\$58.49
6	75	\$32.37	\$8.65	\$20.20	\$0.00	\$61.22
7	80	\$34.53	\$8.65	\$20.77	\$0.00	\$63.95
8	90	\$38.84	\$8.65	\$21.91	\$0.00	\$69.40

**Effective Date - 07/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.18	\$8.65	\$0.00	\$0.00	\$30.83
2	55	\$24.40	\$8.65	\$6.27	\$0.00	\$39.32
3	60	\$26.62	\$8.65	\$6.84	\$0.00	\$42.11
4	65	\$28.83	\$8.65	\$7.41	\$0.00	\$44.89
5	70	\$31.05	\$8.65	\$19.63	\$0.00	\$59.33
6	75	\$33.27	\$8.65	\$20.20	\$0.00	\$62.12
7	80	\$35.49	\$8.65	\$20.77	\$0.00	\$64.91
8	90	\$39.92	\$8.65	\$21.91	\$0.00	\$70.48

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2022	\$41.22	\$8.65	\$23.05	\$0.00	\$72.92
PAINTERS LOCAL 35 - ZONE 2	07/01/2022	\$42.42	\$8.65	\$23.05	\$0.00	\$74.12
	01/01/2023	\$43.62	\$8.65	\$23.05	\$0.00	\$75.32
	07/01/2023	\$44.82	\$8.65	\$23.05	\$0.00	\$76.52
	01/01/2024	\$46.02	\$8.65	\$23.05	\$0.00	\$77.72
	07/01/2024	\$47.22	\$8.65	\$23.05	\$0.00	\$78.92
	01/01/2025	\$48.42	\$8.65	\$23.05	\$0.00	\$80.12

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.61	\$8.65	\$0.00	\$0.00	\$29.26
2	55	\$22.67	\$8.65	\$6.27	\$0.00	\$37.59
3	60	\$24.73	\$8.65	\$6.84	\$0.00	\$40.22
4	65	\$26.79	\$8.65	\$7.41	\$0.00	\$42.85
5	70	\$28.85	\$8.65	\$19.63	\$0.00	\$57.13
6	75	\$30.92	\$8.65	\$20.20	\$0.00	\$59.77
7	80	\$32.98	\$8.65	\$20.77	\$0.00	\$62.40
8	90	\$37.10	\$8.65	\$21.91	\$0.00	\$67.66

**Effective Date - 07/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.21	\$8.65	\$0.00	\$0.00	\$29.86
2	55	\$23.33	\$8.65	\$6.27	\$0.00	\$38.25
3	60	\$25.45	\$8.65	\$6.84	\$0.00	\$40.94
4	65	\$27.57	\$8.65	\$7.41	\$0.00	\$43.63
5	70	\$29.69	\$8.65	\$19.63	\$0.00	\$57.97
6	75	\$31.82	\$8.65	\$20.20	\$0.00	\$60.67
7	80	\$33.94	\$8.65	\$20.77	\$0.00	\$63.36
8	90	\$38.18	\$8.65	\$21.91	\$0.00	\$68.74

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$35.41	\$9.10	\$16.64	\$0.00	\$61.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2020	\$46.11	\$9.40	\$23.12	\$0.00	\$78.63
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER PILE DRIVER LOCAL 56 (ZONE 2)	08/01/2020	\$46.11	\$9.40	\$23.12	\$0.00	\$78.63

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate	
<b>Apprentice - PILE DRIVER - Local 56 Zone 2</b>							
<b>Effective Date - 08/01/2020</b>							
Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<div><b>Notes:</b> Apprentice wages shall be no less than the following Steps; (Same as set in Zone 1) 1\$57.06/2\$61.96/3\$66.87/4\$69.32/5\$71.78/6\$71.78/7\$76.68/8\$76.68</div>							
<b>Apprentice to Journeyworker Ratio:1:5</b>							
PIPELAYER		12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2		06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
		12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
		06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
		12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY)		12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PLUMBER & PIPEFITTER		08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
PLUMBERS & PIPEFITTERS LOCAL 51							



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	12/01/2021	\$36.41	\$9.10	\$16.64	\$0.00	\$62.15
	06/01/2022	\$37.31	\$9.10	\$16.64	\$0.00	\$63.05
	12/01/2022	\$38.16	\$9.10	\$16.64	\$0.00	\$63.90
	06/01/2023	\$39.06	\$9.10	\$16.64	\$0.00	\$64.80
	12/01/2023	\$39.96	\$9.10	\$16.64	\$0.00	\$65.70
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$36.41	\$9.10	\$16.64	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$33.69	\$14.00	\$16.05	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 170 - Dauphinis (Bellingham)</i>	01/01/2022	\$25.75	\$9.76	\$4.00	\$0.00	\$39.51
	12/01/2022	\$26.40	\$10.26	\$4.75	\$0.00	\$41.41
	01/01/2023	\$26.40	\$10.26	\$4.75	\$0.00	\$41.41
	12/01/2023	\$27.00	\$10.76	\$5.45	\$0.00	\$43.21
	01/01/2024	\$27.00	\$10.76	\$5.45	\$0.00	\$43.21
	12/01/2024	\$27.60	\$11.26	\$6.15	\$0.00	\$45.01
	01/01/2025	\$27.60	\$11.26	\$6.15	\$0.00	\$45.01
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofers Waterproofing &Roofers Dampproofg) <i>ROOFERS LOCAL 33</i>	08/01/2021	\$47.03	\$12.28	\$18.15	\$0.00	\$77.46
	02/01/2022	\$48.46	\$12.28	\$18.15	\$0.00	\$78.89

## Classification

Effective Date

Base Wage

Health

Pension

Supplemental  
Unemployment

Total Rate

**Apprentice - ROOFER - Local 33****Effective Date -** 08/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.52	\$12.28	\$4.56	\$0.00	\$40.36
2	60	\$28.22	\$12.28	\$18.15	\$0.00	\$58.65
3	65	\$30.57	\$12.28	\$18.15	\$0.00	\$61.00
4	75	\$35.27	\$12.28	\$18.15	\$0.00	\$65.70
5	85	\$39.98	\$12.28	\$18.15	\$0.00	\$70.41

**Effective Date -** 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.23	\$12.28	\$4.56	\$0.00	\$41.07
2	60	\$29.08	\$12.28	\$18.15	\$0.00	\$59.51
3	65	\$31.50	\$12.28	\$18.15	\$0.00	\$61.93
4	75	\$36.35	\$12.28	\$18.15	\$0.00	\$66.78
5	85	\$41.19	\$12.28	\$18.15	\$0.00	\$71.62

**Notes:** \*\* 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1  
 Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.  
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

**Apprentice to Journeyworker Ratio:\*\***

ROOFER SLATE / TILE / PRECAST CONCRETE

ROOFERS LOCAL 33

08/01/2021	\$47.28	\$12.28	\$18.15	\$0.00	\$77.71
02/01/2022	\$48.71	\$12.28	\$18.15	\$0.00	\$79.14

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER

SHEETMETAL WORKERS LOCAL 17 - A

08/01/2021	\$51.95	\$13.80	\$25.60	\$2.74	\$94.09
02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89

**Apprentice - SHEET METAL WORKER - Local 17-A****Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$21.82	\$13.80	\$6.01	\$0.00	\$41.63
2	42	\$21.82	\$13.80	\$6.01	\$0.00	\$41.63
3	47	\$24.42	\$13.80	\$11.26	\$1.48	\$50.96
4	47	\$24.42	\$13.80	\$11.26	\$1.48	\$50.96
5	52	\$27.01	\$13.80	\$12.23	\$1.59	\$54.63
6	52	\$27.01	\$13.80	\$12.48	\$1.60	\$54.89
7	60	\$31.17	\$13.80	\$13.87	\$1.77	\$60.61
8	65	\$33.77	\$13.80	\$14.84	\$1.87	\$64.28
9	75	\$38.96	\$13.80	\$16.77	\$2.09	\$71.62
10	85	\$44.16	\$13.80	\$18.20	\$2.28	\$78.44

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
2	42	\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
3	47	\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
4	47	\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
5	52	\$27.92	\$13.80	\$12.23	\$1.62	\$55.57
6	52	\$27.92	\$13.80	\$12.48	\$1.63	\$55.83
7	60	\$32.22	\$13.80	\$13.87	\$1.80	\$61.69
8	65	\$34.91	\$13.80	\$14.84	\$1.91	\$65.46
9	75	\$40.28	\$13.80	\$16.77	\$2.13	\$72.98
10	85	\$45.65	\$13.80	\$18.20	\$2.33	\$79.98

**Notes:**

Steps are 6 mos.

**Apprentice to Journeyworker Ratio:1:4**

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	03/01/2021	\$62.45	\$10.00	\$21.25	\$0.00	\$93.70

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**

**Effective Date -** 03/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.86	\$10.00	\$11.99	\$0.00	\$43.85
2	40	\$24.98	\$10.00	\$12.70	\$0.00	\$47.68
3	45	\$28.10	\$10.00	\$13.41	\$0.00	\$51.51
4	50	\$31.23	\$10.00	\$14.13	\$0.00	\$55.36
5	55	\$34.35	\$10.00	\$14.84	\$0.00	\$59.19
6	60	\$37.47	\$10.00	\$15.55	\$0.00	\$63.02
7	65	\$40.59	\$10.00	\$16.26	\$0.00	\$66.85
8	70	\$43.72	\$10.00	\$16.98	\$0.00	\$70.70
9	75	\$46.84	\$10.00	\$17.69	\$0.00	\$74.53
10	80	\$49.96	\$10.00	\$18.40	\$0.00	\$78.36

**Notes:** Apprentice entered prior 9/30/10:  
40/45/50/55/60/65/70/75/80/85  
Steps are 850 hours

**Apprentice to Journeyworker Ratio:1:3**

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 99</i>	06/01/2019	\$30.30	\$10.87	\$6.63	\$0.00	\$47.80

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 99**

**Effective Date -** 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$16.67	\$10.87	\$0.50	\$0.00	\$28.04
2	60	\$18.18	\$10.87	\$0.55	\$0.00	\$29.60
3	65	\$19.70	\$10.87	\$5.59	\$0.00	\$36.16
4	70	\$21.21	\$10.87	\$5.74	\$0.00	\$37.82
5	75	\$22.73	\$10.87	\$5.89	\$0.00	\$39.49
6	80	\$24.24	\$10.87	\$6.04	\$0.00	\$41.15

**Notes:**  
Steps 1-2 are 800 hrs., Steps 3-6 are 6 mos. (800 hrs.)

**Apprentice to Journeyworker Ratio:1:1**

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2021	\$56.09	\$11.39	\$22.25	\$0.00	\$89.73
	02/01/2022	\$56.68	\$11.39	\$22.25	\$0.00	\$90.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date -** 08/01/2021

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.05	\$11.39	\$22.25	\$0.00	\$61.69
2	60	\$33.65	\$11.39	\$22.25	\$0.00	\$67.29
3	70	\$39.26	\$11.39	\$22.25	\$0.00	\$72.90
4	80	\$44.87	\$11.39	\$22.25	\$0.00	\$78.51
5	90	\$50.48	\$11.39	\$22.25	\$0.00	\$84.12

**Effective Date -** 02/01/2022

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.34	\$11.39	\$22.25	\$0.00	\$61.98
2	60	\$34.01	\$11.39	\$22.25	\$0.00	\$67.65
3	70	\$39.68	\$11.39	\$22.25	\$0.00	\$73.32
4	80	\$45.34	\$11.39	\$22.25	\$0.00	\$78.98
5	90	\$51.01	\$11.39	\$22.25	\$0.00	\$84.65

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$42.58	\$9.10	\$17.72	\$0.00	\$69.40
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.30	\$9.10	\$17.72	\$0.00	\$68.12
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2021	\$41.18	\$9.10	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$50.83	\$14.00	\$16.05	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2021	\$53.41	\$9.10	\$18.17	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2021	\$55.41	\$9.10	\$18.17	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2021	\$45.48	\$9.10	\$18.17	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2021	\$47.48	\$9.10	\$18.17	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
	06/01/2022	\$36.56	\$9.10	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.41	\$9.10	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.31	\$9.10	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.21	\$9.10	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$35.66	\$9.10	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2021	\$51.38	\$14.00	\$16.05	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS &amp; PIPEFITTERS LOCAL 51</i>	08/30/2021	\$46.49	\$10.15	\$19.95	\$0.00	\$76.59
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
<b>Outside Electrical - East</b>						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$29.67	\$9.25	\$1.89	\$0.00	\$40.81
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$42.03	\$9.25	\$10.27	\$0.00	\$61.55
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$34.62	\$9.25	\$10.07	\$0.00	\$53.94
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$42.03	\$9.25	\$14.35	\$0.00	\$65.63
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$37.09	\$9.25	\$10.87	\$0.00	\$57.21
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$22.25	\$9.25	\$1.82	\$0.00	\$33.32
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$49.45	\$9.25	\$17.48	\$0.00	\$76.18

**Apprentice - LINEMAN (Outside Electrical) - East Local 104**

**Effective Date - 08/30/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$29.67	\$9.25	\$3.39	\$0.00	\$42.31
2	65	\$32.14	\$9.25	\$3.46	\$0.00	\$44.85
3	70	\$34.62	\$9.25	\$3.54	\$0.00	\$47.41
4	75	\$37.09	\$9.25	\$5.11	\$0.00	\$51.45
5	80	\$39.56	\$9.25	\$5.19	\$0.00	\$54.00
6	85	\$42.03	\$9.25	\$5.26	\$0.00	\$56.54
7	90	\$44.51	\$9.25	\$7.34	\$0.00	\$61.10

**Notes:**

**Apprentice to Journeyworker Ratio:1:2**

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)  
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

\*\* Multiple ratios are listed in the comment field.  
 \*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.  
 \*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.